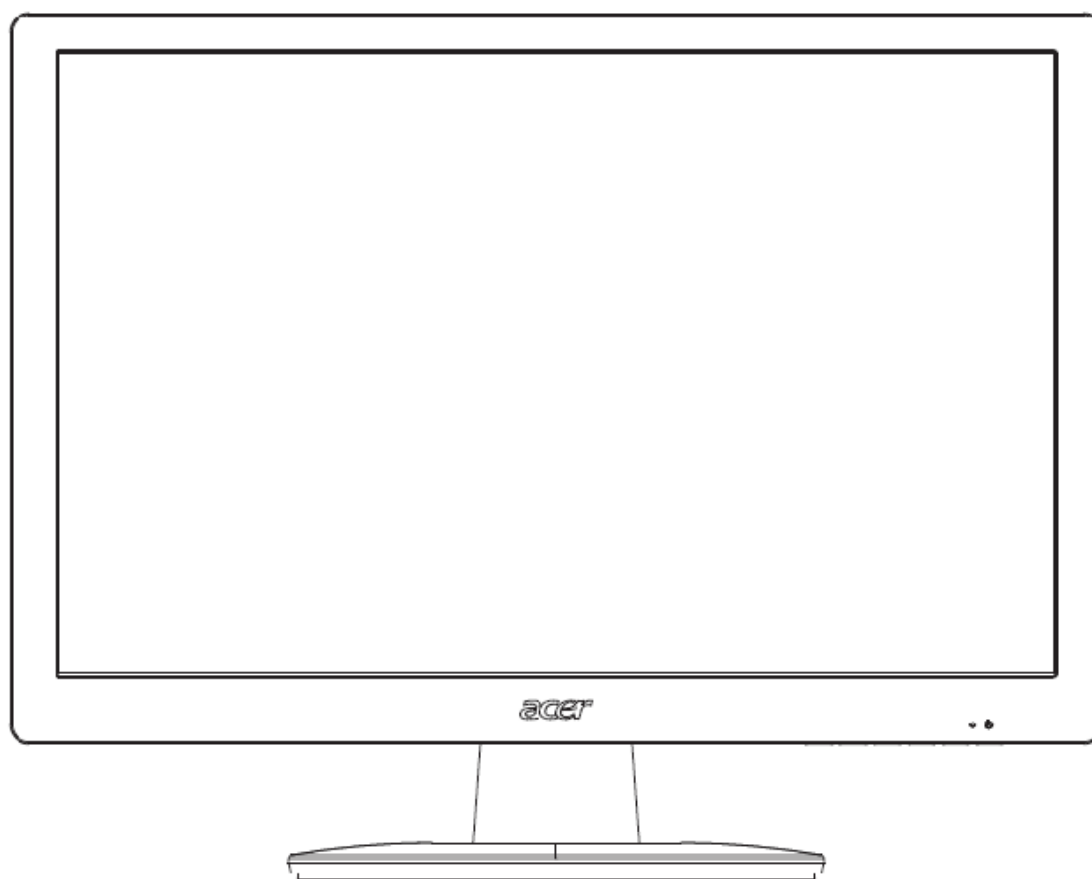


# Service Manual



# Contents

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### Safety Notice

Any person attempting to service this chassis must familiarize with the chassis and be aware of the necessary safety precautions to be used when serving electronic equipment containing high voltage.



## Important Safety Notice

### Product Announcement:

This product is certificated to meet RoHS Directive and Lead-Free produced definition. Using approved critical components only is recommended when the situation to replace defective parts. Vender assumes no liability express or implied, arising out of any unauthorized modification of design or replacing non-RoHS parts. Service providers assume all liability.

### Qualified Repairability:

Proper service and repair is important to the safe, reliable operation of all series products. The service providers recommended by vender should being aware of notices listed in this service manual in order to minimize the risk of personal injury when perform service procedures. Furthermore, the possible existed improper repairing method may damage equipment or products. It is recommended that service engineers should have repairing knowledge, experience, as well as appropriate product training per new model before performing the service procedures.

### NOTICE:

! To avoid electrical shocks, the products should be connect to an authorized power cord, and turn off the master power switch each time before removing the AC power cord.

! To prevent the product away from water or exposed in extremely high humidity environment.

! To ensure the continued reliability of this product, use only original manufacturer's specified parts.

! To ensure following safety repairing behavior, put the replaced part on the components side of PWBA, not solder side.

! To ensure using a proper screwdriver, follow the torque and force listed in assembly and disassembly procedures to screw and unscrew screws.

! Using Lead-Free solder to well mounted the parts.

! The fusion point of Lead-Free solder requested in the degree of 220°C.

## 1. Product Specification

### 1.1 Scope:

#### LCD BM190WX2-TJA1

LM190WX2-TJA1 is a Color Active Matrix Liquid Crystal Display with an integral Light Emitting Diode (LED) backlight system. The matrix employs a-Si Thin Film Transistor as the active element. It is a transmissive type display operating in the normally white mode. It has a 23.0 inch diagonally measured active display area with WXGA+ resolution (900 vertical by 1440 horizontal pixel array) Each pixel is divided into Red, Green and Blue sub-pixels or dots which are arranged in vertical stripes. Gray scale or the brightness of the sub-pixel color is determined with a 8-bit gray scale signal for each dot, thus, presenting a palette of more than 16,7M colors with Advanced-FRC(Frame Rate Control). It has been designed to apply the interface method that enables low power, high speed, low EMI. FPD Link or compatible must be used as a LVDS(Low Voltage Differential Signaling) chip. It is intended to support applications where thin thickness, wide viewing angle, low power are critical factors and graphic displays are important. In combination with the vertical arrangement of the sub-pixels, the LM190WX2-TJA1 characteristics provide an excellent flat panel display for office automation products such as monitors.

General display parameters:

Active screen size	18.95 inches (481.33mm) diagonal (Aspect ratio 16:10)
Outline Dimension	421.64(H) x 267.90(V) x 1.83(D) mm(Typ.)
Pixel Pitch	0.2835(H)mm x 0.2835(V)mm
Pixel Format	1440 horizontal By 900 vertical Pixels. RGB stripe arrangement
Interface	mini-LVDS 1 Port 6 pair, Power, Source and Gate control signals
Color depth	16.7M colors (When use Advanced FRC)
Viewing Angle (CR>10)	R/L 170(Typ.), U/D 160(Typ.)
Weight	450 g (Typ.)
Display operating mode	Transmissive mode, Normally White
Surface treatments	Hard coating (3H), Anti-glare treatment of the front polarizer

## Optical Characteristics:

Parameter		Symbol	Values			Units
			Min	Typ	Max	
Contrast Ratio		CR	700	1000	-	
Response Time	Rise Time	Tr <sub>R</sub>	-	1.3	2.6	ms
	Decay Time	Tr <sub>D</sub>	-	3.7	7.4	ms
Color Coordinates [CIE1931]	RED	R <sub>x</sub>	Typ -0.03	0.641	Typ +0.03	
		R <sub>y</sub>		0.335		
	GREEN	G <sub>x</sub>		0.303		
		G <sub>y</sub>		0.623		
	BLUE	B <sub>x</sub>		0.147		
		B <sub>y</sub>		0.070		
	WHITE	W <sub>x</sub>		0.313		
		W <sub>y</sub>		0.329		
Viewing Angle (CR>5)						
	x axis, right(φ=0°)	θ <sub>r</sub>	75	88		Degree
	x axis, left (φ=180°)	θ <sub>l</sub>	75	88		
	y axis, up (φ=90°)	θ <sub>u</sub>	70	85		
	y axis, down (φ=270°)	θ <sub>d</sub>	70	85		
Viewing Angle (CR>10)						
	x axis, right(φ=0°)	θ <sub>r</sub>	70	85		Degree
	x axis, left (φ=180°)	θ <sub>l</sub>	70	85		
	y axis, up (φ=90°)	θ <sub>u</sub>	60	75		
	y axis, down (φ=270°)	θ <sub>d</sub>	70	85		
Crosstalk					1.5	%
Grayscale			-	-	-	

## 1.2 General Requirements:

### 1.2.1 Test Condition:

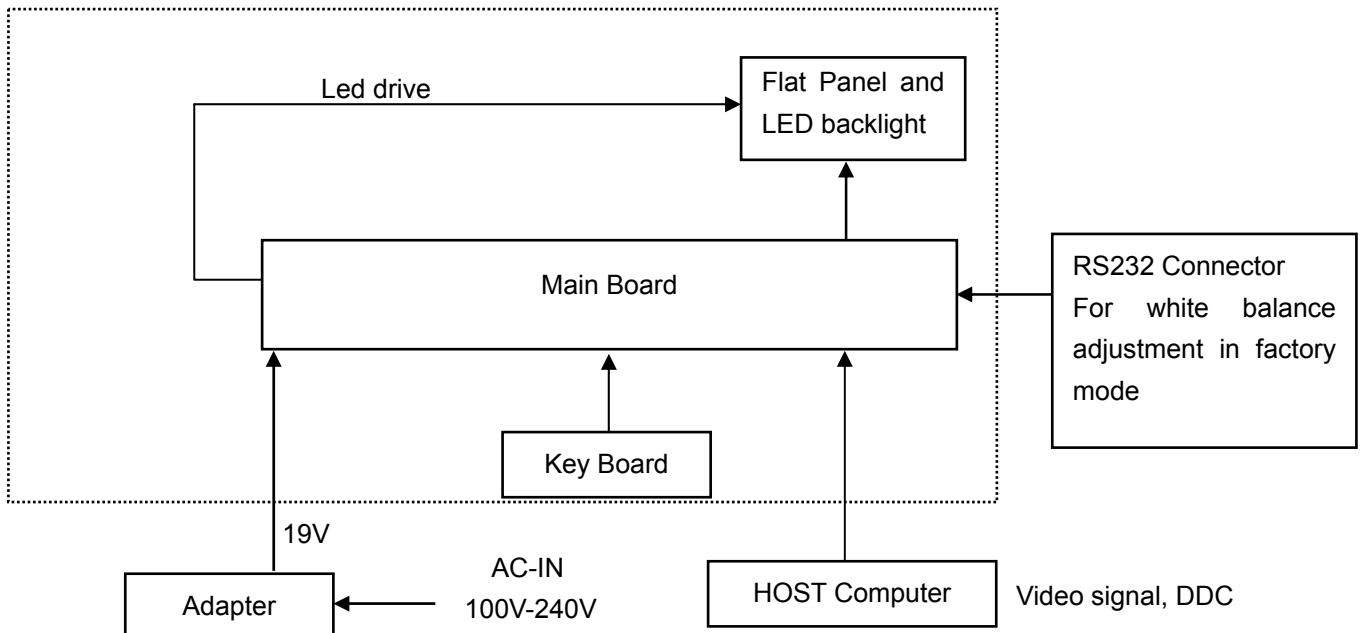
All tests shall be performed under the following conditions, unless otherwise specified.

Warm up time	> 30 min.
AC supply voltage	230V± 5%, 50± 3 Hz
Ambient temperature	20°C ± 5°C
Humidity	65% ± 20%
Display mode	1440 x 900, 60 Hz, Pixel Clock: 106.5MHZ,all white
e-color mode	Set to "User" mode
Contrast control	Set to The value under user mode, which allows that the brightest two of 32 linear distributed gray-scales (0~ 700mv) can be distinguished.
Color temperature	6500°K
Brightness control	The value under user mode
Analog Input signal	700 mVss
Picture position and size	Factory preset value,
Viewing angle	90 ° H and V
Viewing distance	40 cm for LCD performance, 20 cm for LCD failures
Ambient illumination	Dark room (< 1 cd/m <sup>2</sup> )

### 1.2.2 Test Equipment: CHROMA 6630.

### 1.3 Electrical:

This section describes the electrical requirement of the monitor. Below is the block diagram.



The LCD monitor will contain a main board and a key board which house the flat panel control logic, brightness control logic and DDC. The adapter will provide AC to DC voltage to drive the main board chips each voltage. The function key board is used for OSD control, monitor power ON/OFF and the LED indicator for power status.

LCD Panel	Driving system	TFT Color LCD
	Pixel pitch	0.2835 (H) x 0.2835 (V) (mm)
	Contrast Ratio	1000 (Typ.)
	Response time	5ms (Typ.). 10ms(max)
	Luminance of White	250 cd/m <sup>2</sup> (Typ.)
Input	Separate Sync.	H/V TTL
	H-Frequency	31kHz-80kHz
	V-Frequency	56-75Hz
Viewing angle	CR>10 ,R/L 170(Typ.), U/D 160(Typ.)	
Display mode	1440 x 900@60Hz	
EPA ENERGY STAR®	ON Mode	< 30W
	OFF Mode	< 2W
Power Source	100 V ~ 240 V, 50 ± 3Hz, 60 ± 3Hz	
Environmental Considerations	Operating Temp: 0° to 40°C Storage Temp: -20° to 60°C Operating Humidity: 15% to 90% Storage Humidity: 15% to 90% Operating Altitude: 12,000 feet Storage Altitude: 40,000 feet	
Peak surge current	< 55A peak at 240 VAC and cold starting	
Power line surge	No advance effects (no loss of information or defect) with a maximum of 1 half-wave missing per second	

### 1.3.1 Interface Connectors:

#### 1.3.1.1 Power Adaptor and Connector:

The AC inlet connector shall be an IEC 320-C13 male power receptacle for connection to mains power. The power cord shall be gray or black with length of 1.8m + 10cm/-0cm. The power cord type is different from regions. The adapter output cable length of 1500±36mm, voltage is 19v and current is 1.58A.

1.3.1.2 Analog Connector and Cable: The analog signal cable shall be Gray or black and 1.8m + 10cm/-0cm.

##### A. D-SUB

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1.	Red	9.	+5V
2.	Green	10.	Logic Ground
3.	Blue	11.	Monitor Ground
4.	Monitor Ground	12.	DDC-Serial Data
5.	DDC-return	13.	H-Sync
6.	R-Ground	14.	V-Sync
7.	G-Ground	15.	DDC-Serial Clock
8.	B-Ground		

##### B. DVI (only for S190WL BD)

PIN	Meaning	PIN	Meaning
1.	TMDS Data2-	13.	NC
2.	TMDS Data2+	14.	+5V Power
3.	TMDS Data 2/4 Shield	15.	Logic Ground
4.	NC	16.	Hot Plug Detect
5.	NC	17.	TMDS Data0-
6.	DDC Clock	18.	TMDS Data0+
7.	DDC Data	19.	TMDS Data 0/5 Shield
8.	NC	20.	NC
9.	TMDS Data1-	21.	NC
10.	TMDS Data1+	22.	TMDS Clock Shield
11.	TMDS Data 1/3 Shield	23.	TMDS Clock+
12.	NC	24.	DDC TMDS Clock-



## C. LED backlight Connector

Connector: CN803

Pin	Signal	Pin	Signal
1	Feedback1	7	LED drive
2	NC	8	NC
3	NC	9	NC
4	NC	10	Feedback2
5	NC	11	GND
6	LED drive	12	GND

## D. Key Board Connector

Connector: CN401

Pin	Signal	Pin	Signal
1	GND	4	POWER KEY
2	LEDA	5	KEY2
3	LEDG	6	KEY1

## E. Flat Panel Connector

Connector: CN407

Pin	Signal	Pin	Signal
1	GND	26	GND
2	CLK1	27	ICLK_RESET
3	CLK1	28	H2DOT
4	CLK2	29	CSC
5	CLK2	30	POL
6	CLK3	31	POL2
7	CLK3	32	SOE
8	CLK4	33	GND
9	CLK4	34	LV0+
10	GVDD_O	35	LV0-
11	GVDD_E	36	LV1+
12	G_RES	37	LV1-
13	VGL	38	LV2+
14	VGL	39	LV2-
15	VGH	40	GND
16	VGH	41	LCLK+
17	VDD	42	LCLK-
18	VDD	43	GND
19	VDD	44	LV3+
20	VCC	45	LV3-
21	VCC	46	LV4+
22	VCOMD	47	LV4-
23	VCOMD	48	LV5+
24	VCOMC	49	LV5-
25	VCOMC	50	GND

### 1.3.2 Input Signals:

#### Video Input Signals Range (Analog RGB Signal)

No.	Symbol	Item	Min	Max	Unit
1	Fh	Horizontal Frequency	31	80	kHz
2	Fv	Vertical Frequency	56	75	Hz
3	Fclk	Pixel Clock Frequency		106.5	MHz
4	Vih	High Level Input	2.4		V
5	Vil	Low Level Input	0	0.8	V
6	Video	RGB Analog Video Level	0	0.7	V

#### 1.3.2.1 Video Signal Amplitudes:

The video inputs consist of Red, Green and Blue signals each has its own coaxial cable terminated at the monitor. These video signals are analog levels, where 0V corresponds to black, and 700mV is the maximum signal amplitude for the respective color. The video signal is terminated with 75 ohms.

#### 1.3.2.2 Video Signal Termination Impedance:

The analog video signal termination shall be 75 ohm.

#### 1.3.2.3 Synchronization (Sync) Signals:

The Horizontal Sync (HS) TTL signal is used to initiate the display of a horizontal line. HS may be either active high or active low according to the timing. The Vertical Sync (VS) TTL signal is used to initiate the display of a new frame. VS may be either active high or active low according to the timing.

#### 1.3.2.4 Sync Signal Levels:

Level: L = 0V ~ 0.8V      H = 2.4V ~ 5V

#### 1.3.2.5 Abnormal Signal Immunity:

The monitor shall not be damaged by improper sync timing, pulse duration, absence of sync, abnormal input signal amplitude, or any other anomalous behavior of a graphics card.

#### 1.3.2.6 Digital TMDS Input (DVI signal input):

#### 1.3.3 User Controls and Indicators:

Signals used for mode detection:

- Nominal horizontal frequency
- Nominal vertical frequency
- Horizontal sync. Pulse polarity
- Vertical sync. Pulse polarity

The tolerance for detecting the horizontal frequency is between  $\pm 1\text{KHz}$  from center frequency

The tolerance for detecting the vertical frequency is between  $\pm 0.5\text{Hz}$  from center frequency

#### 1.3.3.1 Power On/Off Switch:

The monitor shall have a power control switch visible and accessible on the front of monitor.

### 1.3.3.2 Power Indicator LED:

The monitor shall have LED indicators located on the front of the monitor. Table 1 is the LED color for the power indicator.


State	LED Light
ON	Blue
Power Saving Mode	Blinking Blue

### 1.3.3.3 On-Screen Display:

On Screen Display system shall be used to control the monitor. Current setting will be saved and OSD will be tuned off when the keys are not touched for a period of time.

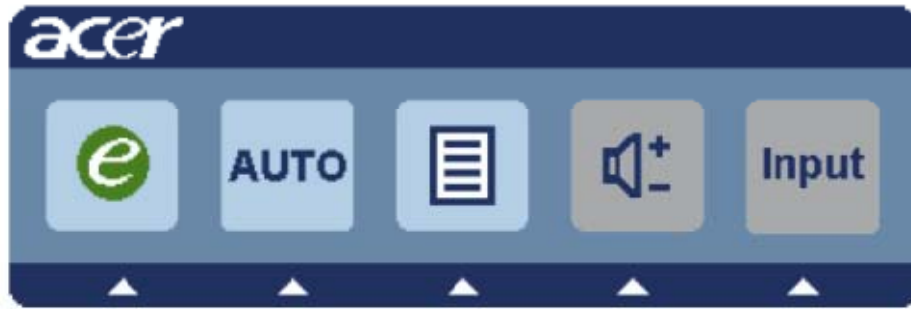
#### A) Key Function Overview:

All functions are controlled by OSD buttons on the front of bezel.

1.  Power Switch	To turn ON or OFF the power.
2.Power LED	Lights up to indicate the power is turned ON.
3.Empowering	Trigger the acer eColor Management.
4.Auto Adjust button / Exit	1) When OSD menu is in active status, this button will act as EXIT-KEY (EXIT OSD menu). 2) When OSD menu is in off status, press this button for 2 seconds to activate the Auto Adjustment function .The Auto Adjustment function is used to set the Hpos, Vpos, Clock and Focus. 3) When exit eColor OSD, it will activate the Auto Adjustment function automatically.
5.< / >	Press < or > to select the desired function. Press < or > to change the settings of the current function. Or press < to trigger volume management OSD, press > to change input source.
6.MENU / ENTER	Activate OSD menu when OSD is OFF or activate/de-activate adjustment function when OSD is ON. But it has no function at the information page.

## B) Menu Operation:

Pressing the MENU button brings up the first level menu.



## C) OSD Function:

Acer e-Color Management
Contrast, Brightness, ACM
H-position, V-position
Clock, Focus
OSD position, Timeout
Color Select and adjust (warm, cool, user).
EMEA: 11 Language selected (English, Deutsch, French, Spanish, Italian, Hollands, Finnish, Turkish, Polish, Русский, Portuguese )
ASIA: 8 Language selected (English, DutSch, French, Spanish, Italian, Japanese, Chinese, Chinese Simplify, )
Signal Input Select and DDC/CI Control (Analog, DDC/CI)
Display Information
Factory Reset
Exit

## D) OSD Control Factory Default Values:

eColor mode	Standard
Brightness	100
Contrast	50
ACM	Off
Color	Warm
Language	English
OSD Timeout	10s
DDC/CI	On
User R/G/B	50/50/50

## 1.3.4 Monitor Modes and Timing Capability:

### 1.3.4.1 Format and Timing:

The monitor shall synchronize with any vertical frequency from 56 to 75 Hz, and with any horizontal frequency from 31 to 80 KHz.

## 1.3.4.2 Factory Assigned Display Modes:

Mode	Resolution			
1		640x480	60	Hz
2		640x480	72	Hz
3		640x480	75	Hz
4	MAC	640x480	66.66	Hz
5	VESA	720x400	70	Hz
6	SVGA	800x600	56	Hz
7	SVGA	800x600	60	Hz
8	SVGA	800x600	72	Hz
9	SVGA	800x600	75	Hz
10	MAC	832x624	74.55	Hz
11	XGA	1024x768	60	Hz
12	XGA	1024x768	70	Hz
13	XGA	1024x768	75	Hz
14	MAC	1152x870	75	Hz
15	VESA	1152x864	75	Hz
16	VESA	1280x720	60	Hz
17	WXGA	1280x800	60	Hz
18	WXGA+	1440x900	60	Hz

## 1.4 Flat Panel:

## 1.4.1 General Requirements:

The panel shall be a FULL HD resolution 19" diagonal TFT-LCD.

## 1.4.2 Polarizer Hardness:

The front polarizer should have hard coating (3H) and anti-glare treatment.

## 1.4.3 Backlight Requirements:

#### 1.4.3.1 General Requirements:

Parameter	Symbol	Condition	Values			Unit
			Min.	Typ.	Max.	
LED :						
LED String Current	Is		-	60	65	mA
LED String Voltage	Vs		-	51.2	56	V
Power Consumption	PBar		-	9.2	10.1	Watt
LED Life Time	LED_LT		30,000	-	-	Hrs

#### 1.4.4 Defects:

##### 1.4.4.1 Defect Terminology:

**Dark Spots / Lines:** Spots or lines that appear dark in the display patterns and are usually the result of contamination. Defects do not vary in size or intensity (contrast) when contrast voltage is varied. Contrast variation can be achieved through the use of varying gray shade patterns.

**Bright Spots / Lines:** Spots or lines that appears light in the display patterns. Defects do not vary in size or intensity (contrast) when contrast voltage is varied. Contrast variation can be achieved through the use of varying gray shade patterns.

**Polarizer Scratch:** When the unit lights, lines appear light (white) with display patterns dark and do not vary in size. Physical damage to the polarizer does not damage the glass.

**Polarizer Dent:** When the unit lights, spots appear light (white) with display patterns dark and do not vary in size. Physical damage to the polarizer does not damage the glass.

**Rubbing Line:** Horizontal or diagonal lines that appear gray with the display patterns dark and may have resulted from an “out of control” rubbing process on the polyimide or “waves” on the BEFs or prism sheets .

**Newton Ring:** The “rainbow” effect caused by non-uniform cell thickness.

**Mottling:** When the unit lights, variation / non - uniformity (splotch) appears light (white) with the display and might vary in size.

**Dim Line:** When the unit lights, line(s) in the minor (vertical) or major (horizontal) axis appear dim, but not completely on or off.

**Cross Lines Off:** When the unit lights , lines in both the minor and major axis do not appear.

**Bright/Dark Dot:** A sub - pixel (R, G, B dot) stuck off / on (electrical).

#### 1.5 Optical Characteristics:

##### 1.5.1 Brightness uniformity:

Definition of White Variation ( $\delta W$ ):

Surface luminance is the luminance value at center 1 point(1) across the LCD surface 50cm from the surface with all pixels displaying white.

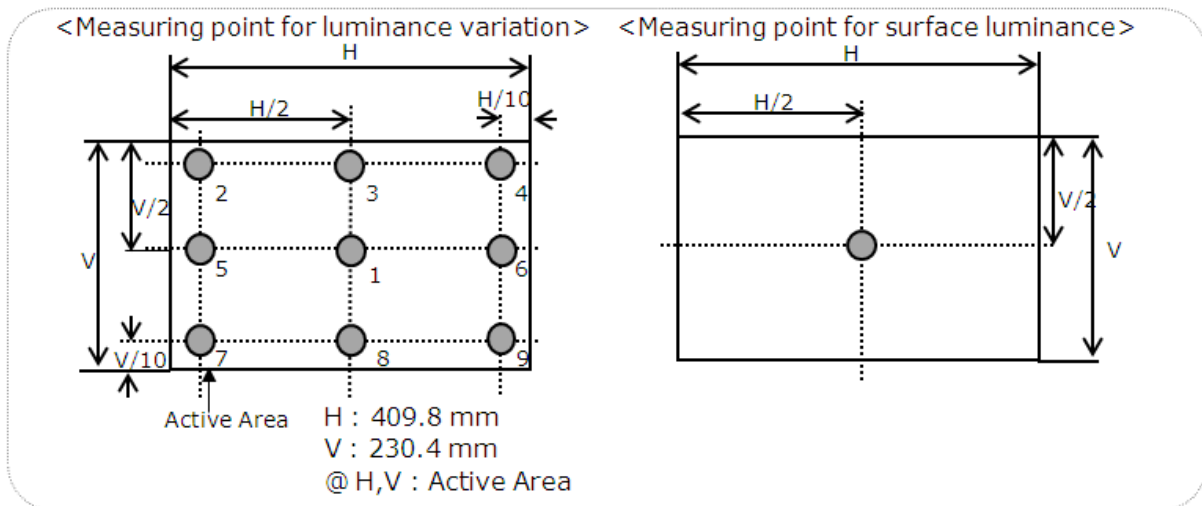
For more information see FIG 8.

The variation in surface luminance ,  $\delta_{\text{WHITE}}$  is defined as

$$\delta_{\text{WHITE}} = \frac{\text{Minimum (P1,P2 .....P9)}}{\text{Maximum (P1,P2 .....P9)}} * 100$$

For more information see Figure 8.

**FIG. 8 Luminance measuring point**

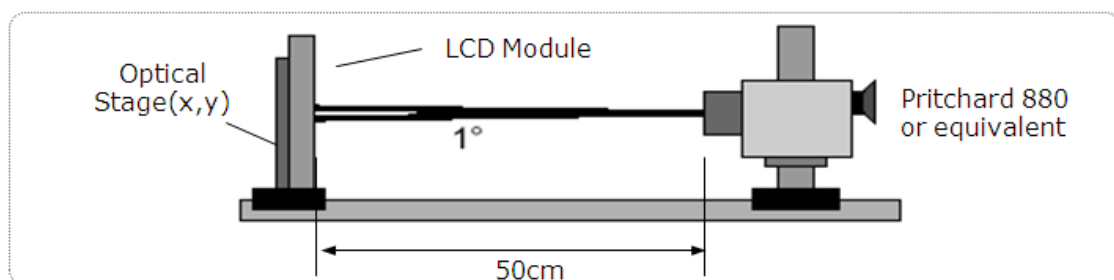


## 1.5.2 Contrast ratio (CR):

### 1.5.2.1 General CR:

The values specified are at an approximate distance 50cm from the LCD surface at a viewing angle of  $\Phi$  and  $\theta$  equal to  $0^\circ$ .

**FIG. 7 Optical characteristic measurement equipment and method**

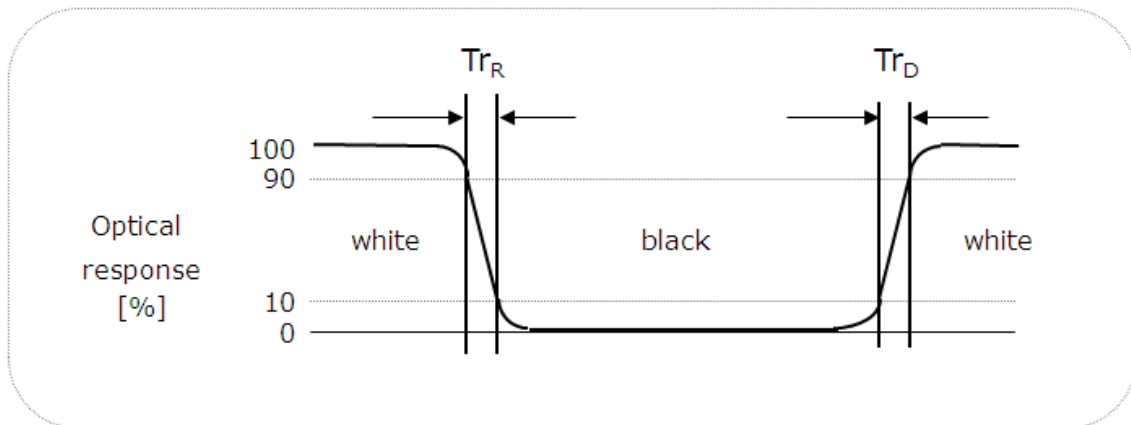


Contrast ratio(CR) is defined mathematically as :It is measured at center point(1)

$$\text{Contrast ratio} = \frac{\text{Surface luminance with all white pixels}}{\text{Surface luminance with all black pixels}}$$

### 1.5.3 Response time:

**FIG. 9 Response time**



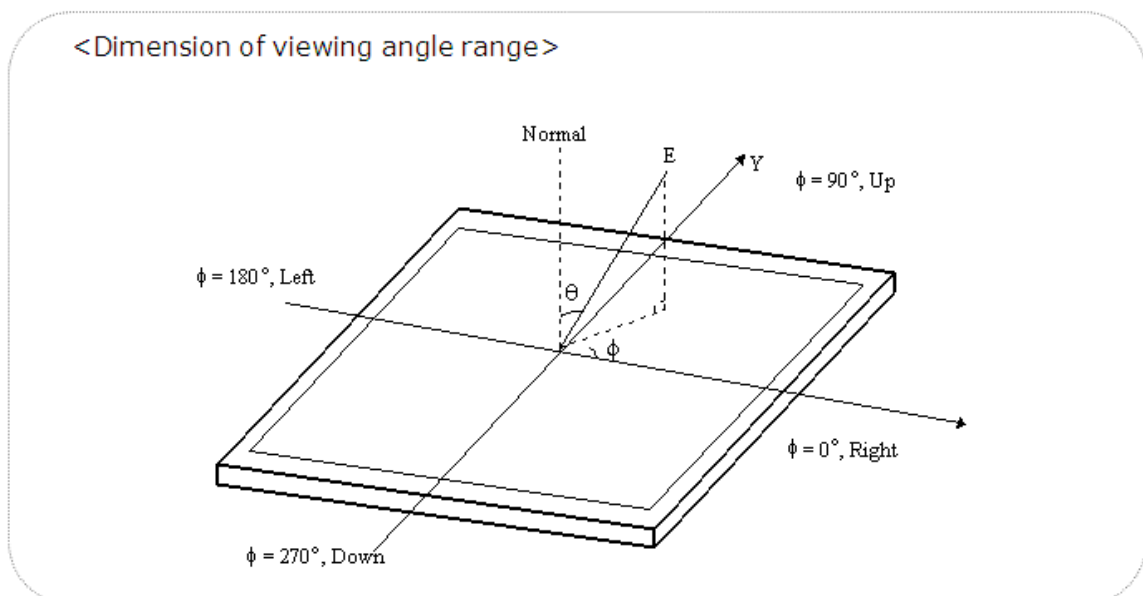
Response time is the time required for the display to transition from black to white (Decay Time,  $Tr_D$ ) and from white to black (Rise Time,  $Tr_R$ )

The sampling rate is 2,500 sample/sec. For additional information see FIG. 9.

The response time is defined as the following figure and shall be measured by switching the input signal for each gray to gray.

### 1.5.4 Viewing angles:

**FIG. 10 Viewing angle**



Viewing angle is the angle at which the contrast ratio is greater than 10 or 5. The angles are determined for the horizontal or x axis and the vertical or y axis with respect to the z axis which is normal to the LCD surface. For more information see FIG. 8.



### 1.5.5 Chromaticity:

The x and y co-ordinates for Reddish, Bluish and User preset mode shall be as below:

Reddish Preset (6500K):

$$x=0.313 \pm 0.020$$

$$y=0.329 \pm 0.020$$

Bluish Preset (9300K):

$$x=0.283 \pm 0.020$$

$$y=0.297 \pm 0.020$$

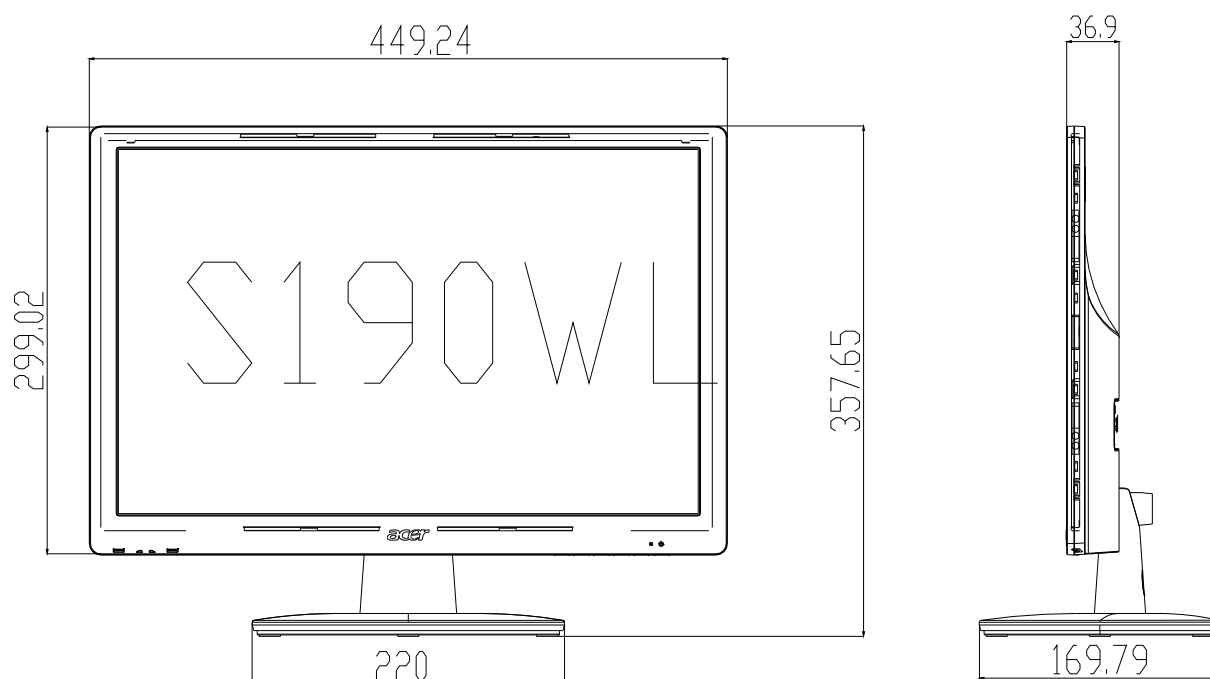
### 1.6 Environmental Requirements:

	Operating	Storage
Temperature:	0°C - +40°C	-20°C - +60°C
Humidity:	15% - 90%	15% - 90%
Altitude:	12,000 feet (3,658m)	40,000 feet (12,192m)

### 1.7 Mechanical and Packing:


	Monitor	Packed Monitor
Width:	377.8mm	425
Height:	296.1mm	300
Depth:	160.3mm	110
Weight:	1.7kg	2.4kg

Dimension (mm):



## 2. OSD Menu

### 2.1 Key Definition:

1.  Power Switch	To turn ON or OFF the power.
2. Power LED	Lights up to indicate the power is turned ON.
3. Empowering	Trigger the acer eColor Management.
4. Auto Adjust button / Exit	1) When OSD menu is in active status, this button will act as EXIT-KEY (EXIT OSD menu). 2) When OSD menu is in off status, press this button for 2 seconds to activate the Auto Adjustment function. The Auto Adjustment function is used to set the Hpos, Vpos, Clock and Focus. 3) When exit eColor OSD, it will activate the Auto Adjustment function automatically.
5. < / >	Press < or > to select the desired function. Press < or > to change the settings of the current function. Or press < to trigger volume management OSD, press > to change input source.
6. MENU / ENTER	Activate OSD menu when OSD is OFF or activate/de-activate adjustment function when OSD is ON. But it has no function at the information page.

### 2.2 Function Menu:

- 1). Display Function Menu while user press any function button.
- 2). Layout as following figure:



### 2.3 Main OSD Menu:

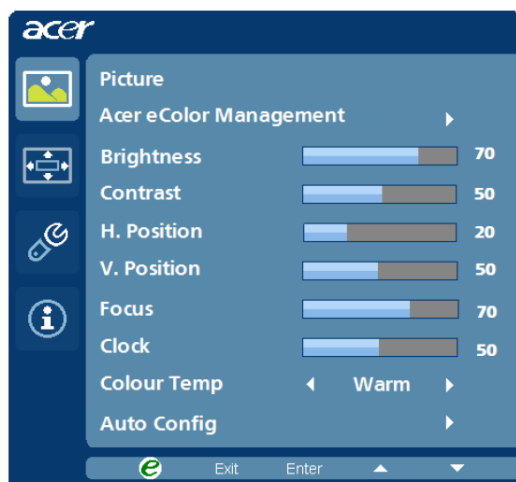
#### 2.3.1. OSD layout:

- a. Display OSD menu when user press "MENU" button on front bezel.
- b. Layout as following figure.



- c. OSD layout for each function page.

Picture



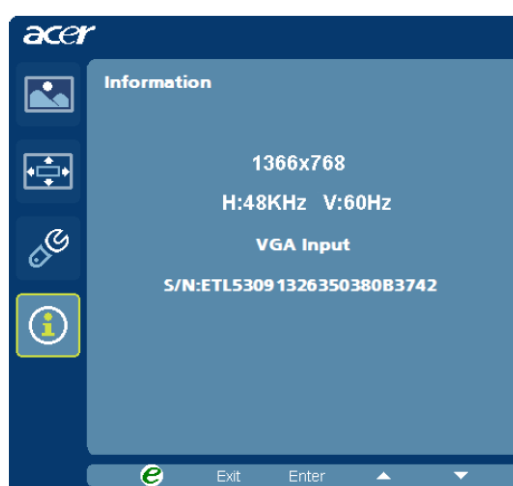
OSD





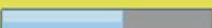
Setting



Information



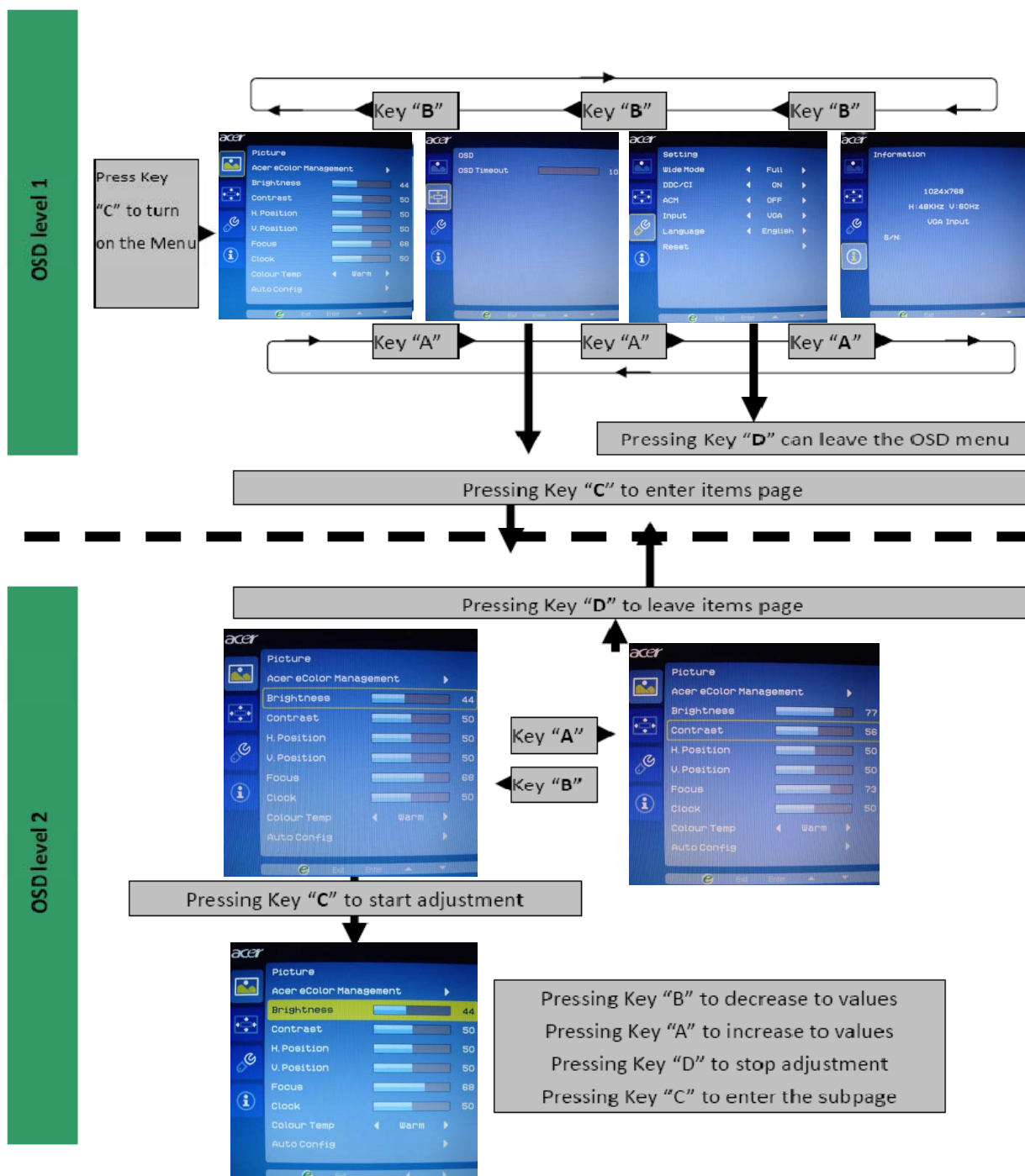
## d. Item page status

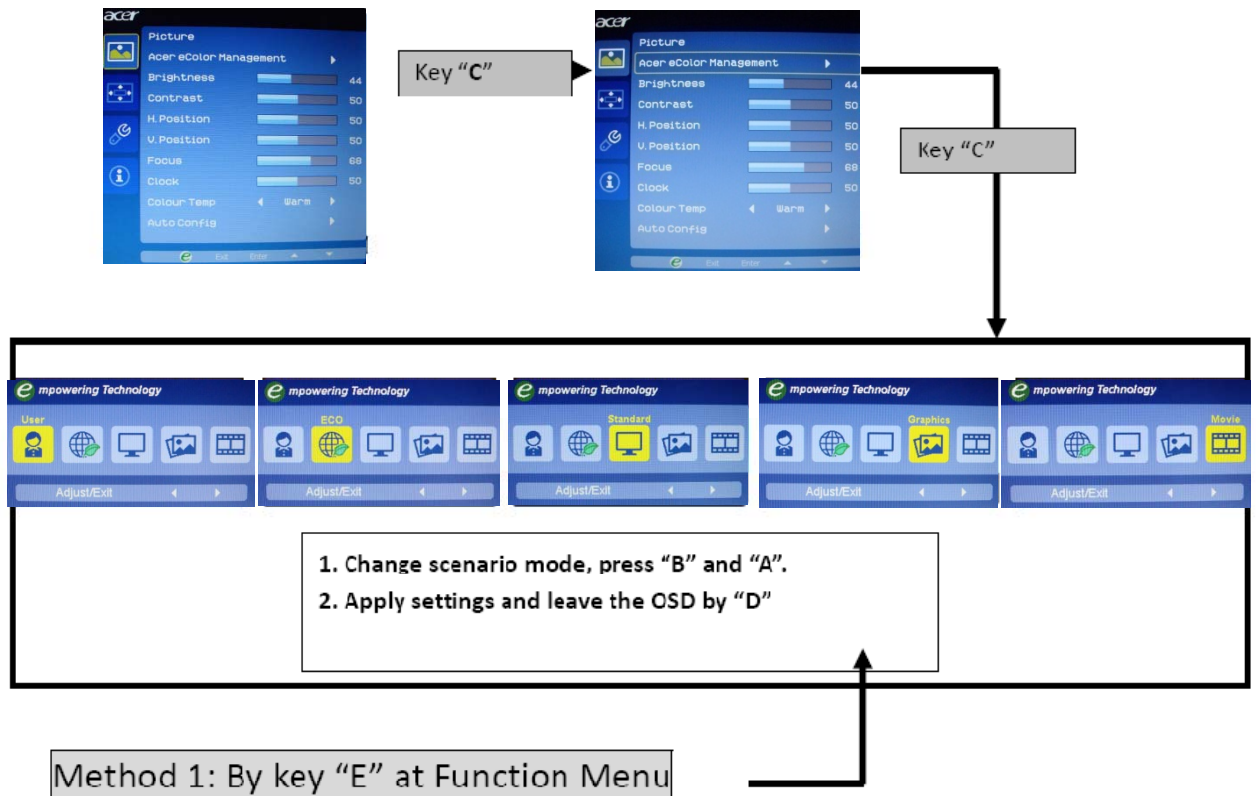
Status	Display type
NonFocus	Brightness  50
Item focused	Brightness  50
Item selected	Brightness  50

## 2.3.2 Key operation:

Key define:

Key	Function description		
Power	Power on/off the monitor	C	Main Menu OSD
A	Input Switch	D	Auto Config
B	Volume Management OSD	E	Trigger the acer eColor Management





#### 2.4 Acer eColor management:

- a. Display Acer eColor Management OSD when user press "e" button at Function menu or trigger this function in OSD menu/picture page.
- b. Layout as following figure:

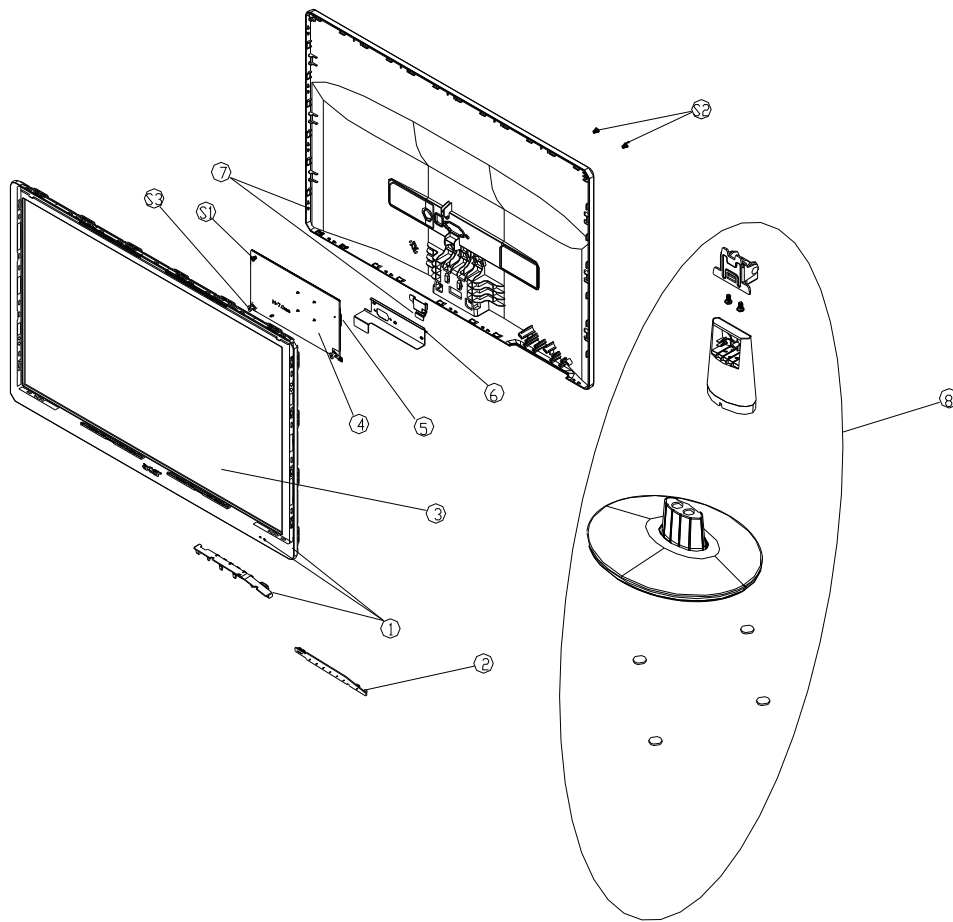


#### 2.5 OSD Message:

Item	Description
Auto Config Please Wait	When User Press Hot-Key "Auto", will show this message, and the monitor do the auto config function.
Input Not Supported	When the Hsync Frequency, Vsync Frequency or Resolution is out of the monitor support range, will show this message. This message will be flying.
Cable Not Connected	When the video cable is not connected, will show this message. This message will be flying.
No Signal	When the video cable is connected, but the is no active signal input, will show this message, then enter power saving.
Please Wait	After user trigger the reset function, system will show this message to notice user the reset is in proceeding

### 3. Exploded Diagram

#### 3.1 Product Exploded Diagram:

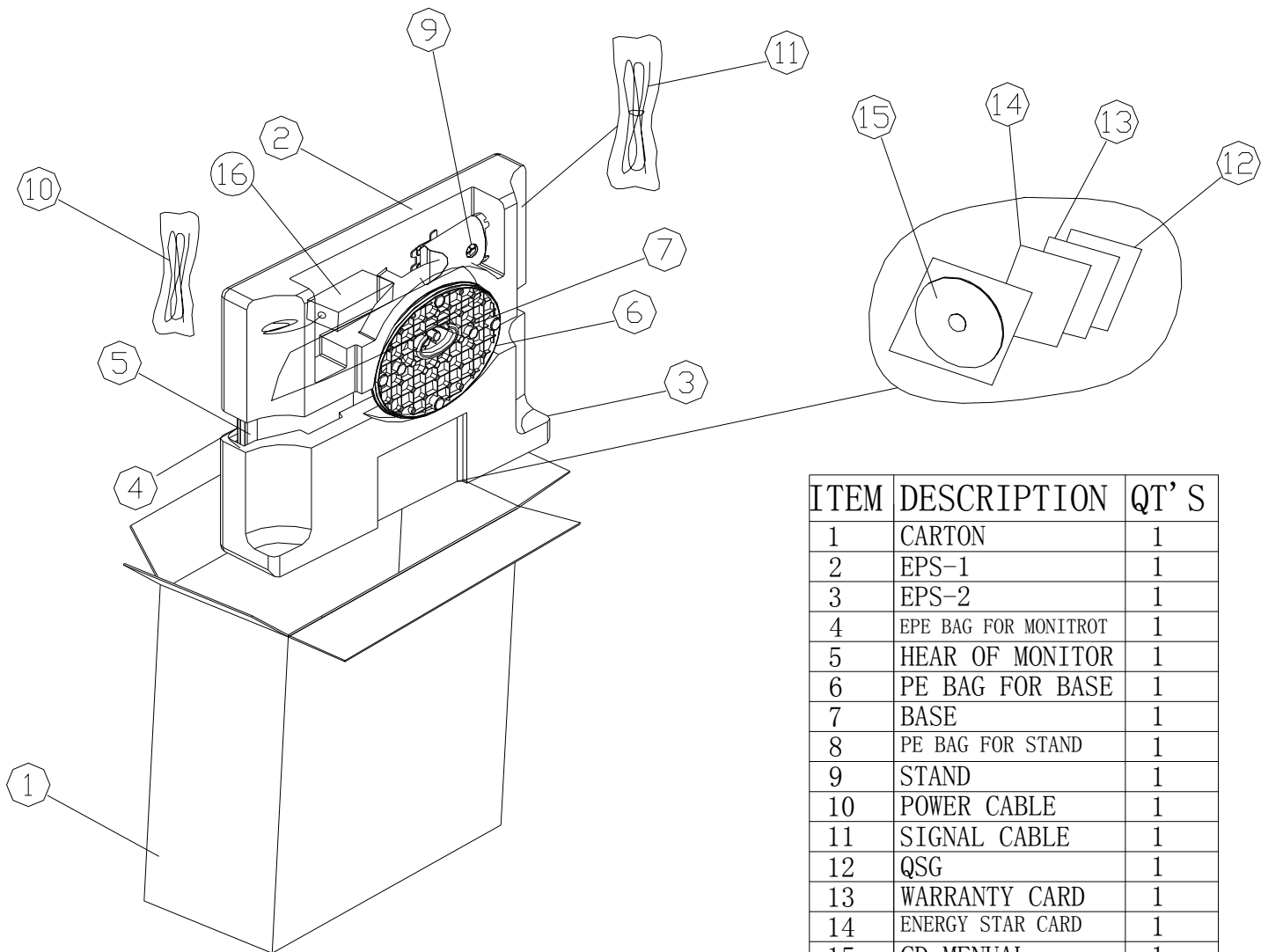


Note: The parts information listed below are for reference only, and are subject to change without notice. Please go to <http://cs.tpv.com.cn/hello1.asp> for the latest information.

S190WL b

Item	Description	LNT Part No.	Acer Part No.
1	BEZEL ASSY	A34G2642AEMA1B0130	60.LUF0B.001
2	KEY BOARD	KEPCBQJ1	55.LUF0B.002
3	BM190WX2-TJA1-7F1-A0 FQ LTD	750GBT190W2A11N000	LK.19008.039
4	MYLAR	F52G18014D8001	N/A
5	MAIN BOARD	CBPCBAWABQJ	55.LUF0B.001
6	I/O BRACKET	A15G1677101	N/A
7	REAR COVER ASSY	A34G2643AEMA1B0100	60.LUF0B.002
8	HINGE ASSY	A37G0268011	60.LUF0B.003
S1	SCREW(MAIN BOARD TO IO BRACKET)	0M1G1730--6120	N/A
S2	SCREW(REAR COVER TO IO BRACKET)	0M1G-130--8-47-CR3	N/A
S3	PCB SUPPORT(MAYLAR TO MAIN BOARD)	Q11G0108--1	N/A

### 3.2 Packing Exploded Diagram:



ITEM	DESCRIPTION	QT' S
1	CARTON	1
2	EPS-1	1
3	EPS-2	1
4	EPE BAG FOR MONITROT	1
5	HEAR OF MONITOR	1
6	PE BAG FOR BASE	1
7	BASE	1
8	PE BAG FOR STAND	1
9	STAND	1
10	POWER CABLE	1
11	SIGNAL CABLE	1
12	QSG	1
13	WARRANTY CARD	1
14	ENERGY STAR CARD	1
15	CD MANUAL	1
16	ADAPTER	1

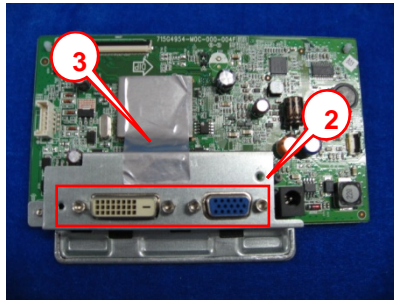
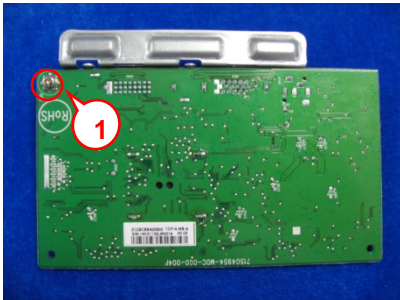
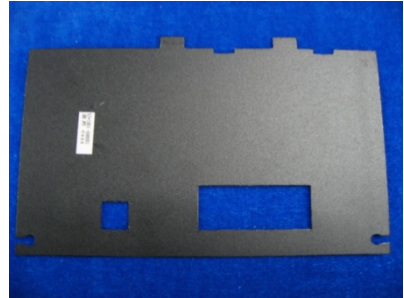


## 4. Assembly and Disassembly Procedures

### 4.1 Assembly Procedures:

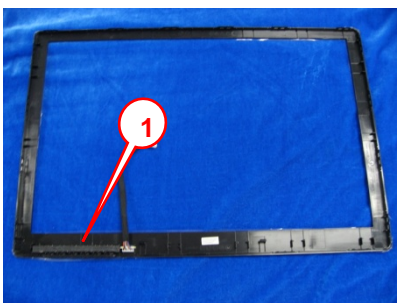
S1 Prepare a main board, an I/O Bracket and a Mylar. Assemble every part as the below picture.

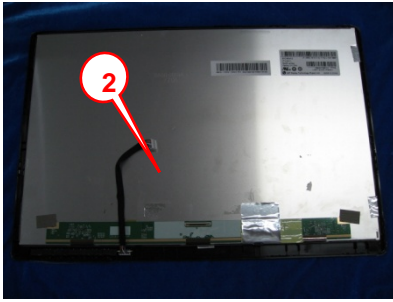
- ① Turn over the main board and Lock screw.
- ② Turn over the main board and lock the four screws.
- ③ Paste the AL tape
- ④ Assemble the mylar on the back of main board.



S2 Prepare a bezel, a key board and a panel.

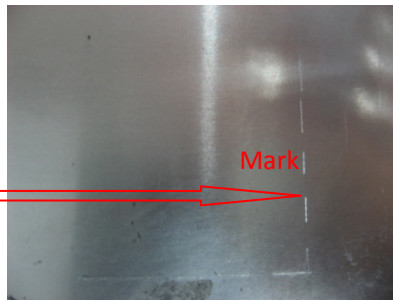
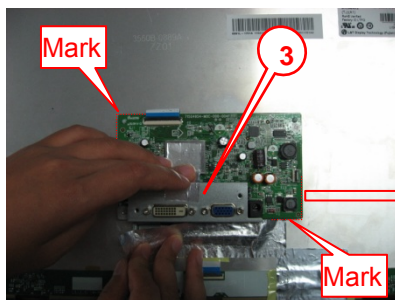
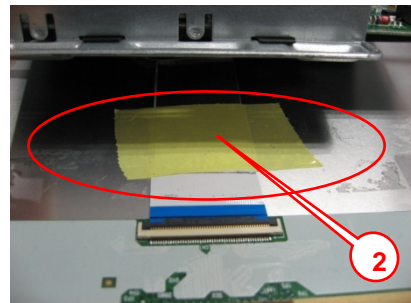
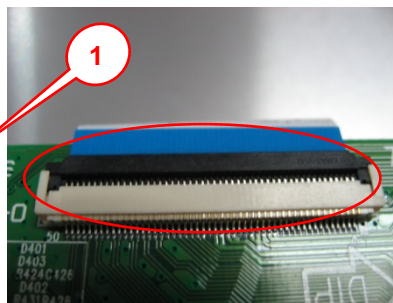
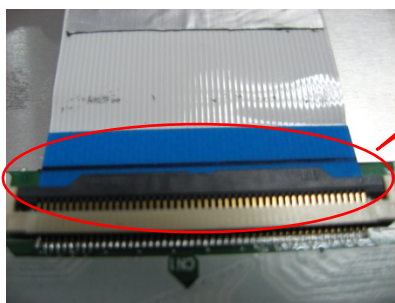
- ① Assemble the bezel and Keyboard.
- ② Put the panel in the bezel assembly.



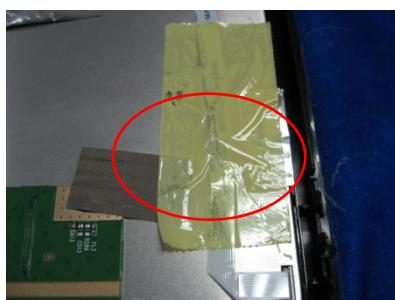
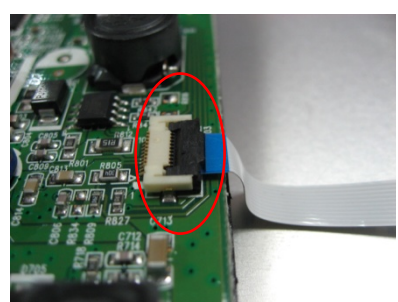
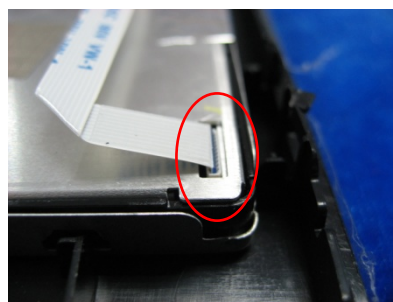
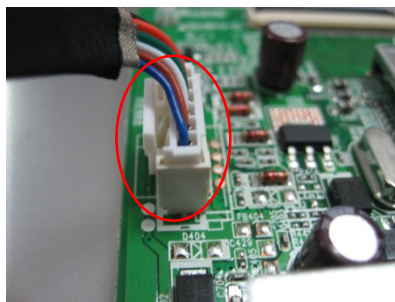


### S3 Connect FFC cable and fix Mainboard:

- ① Connect panel pcb and main board with FFC cable
- ② Paste the tape.
- ③ Follow the two marks to fix the main board on the back cover and then paste the AL tape.



### S4 Connect the all cable and the paste all tapes as the below picture:



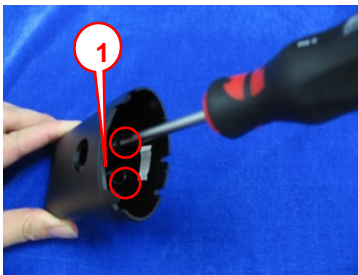


S5 Assemble rear cover and lock the two screws.



S6 Prepare a Stand, a Hinge and a Base.

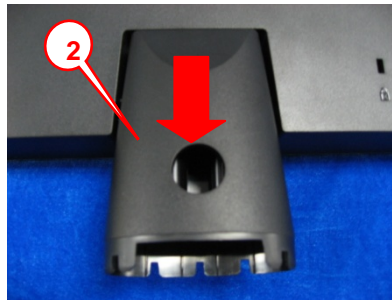
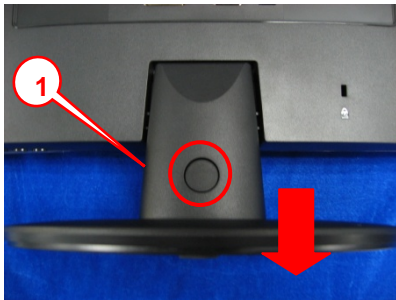
- ① Assemble the stand and hinge, lock the two screws
- ② Assemble the stand ass'y and the base



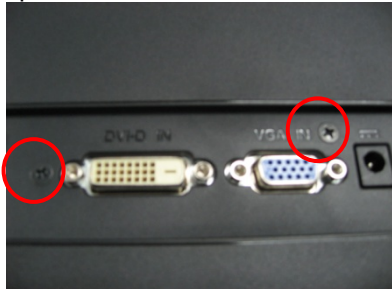
## 4.2 Disassembly procedures:

S1 Put the monitor on a protective cushion.

- ① Press the release button follow arrowhead as the below picture to remove the base.
- ② Pull out the stand ass'y.



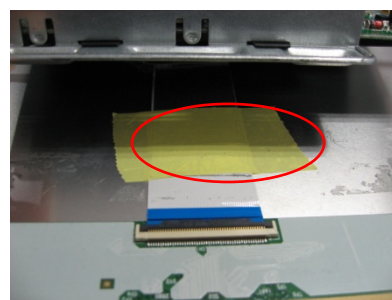
S2 Unscrew the two screws and then open all latches with tool.



S3 Remove the rear cover.

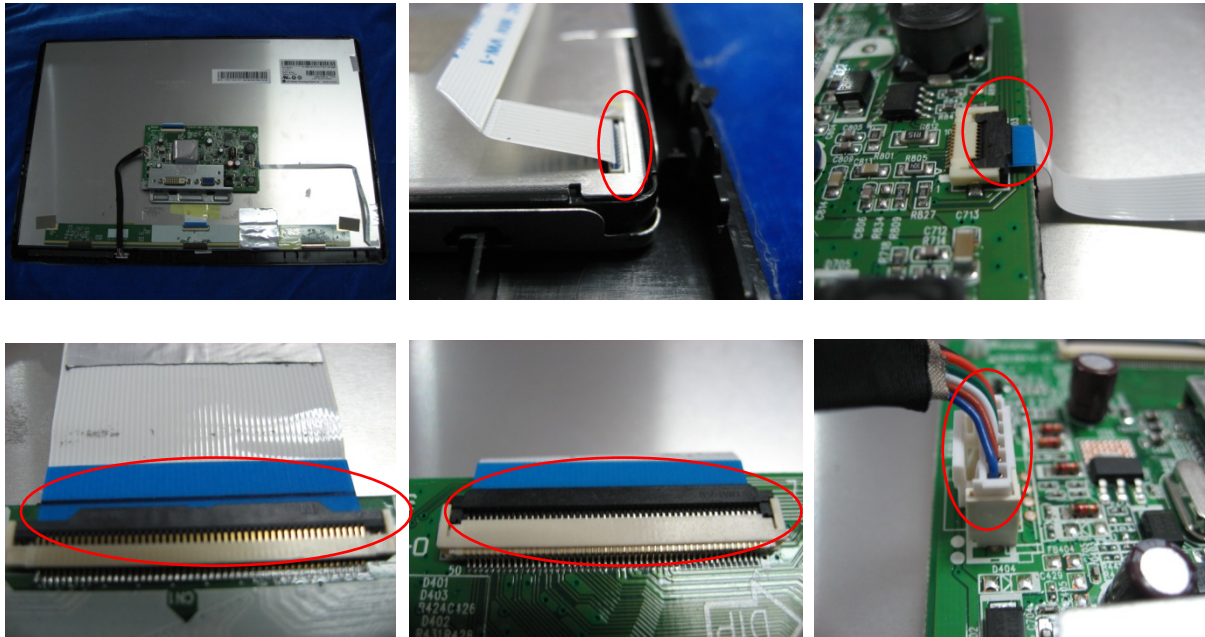


S4 Tear out all tapes on panel.





S5 Disconnect two FFC cables and Key board cable as the below picture:



S6 Separate the main board and I/O Bracket.

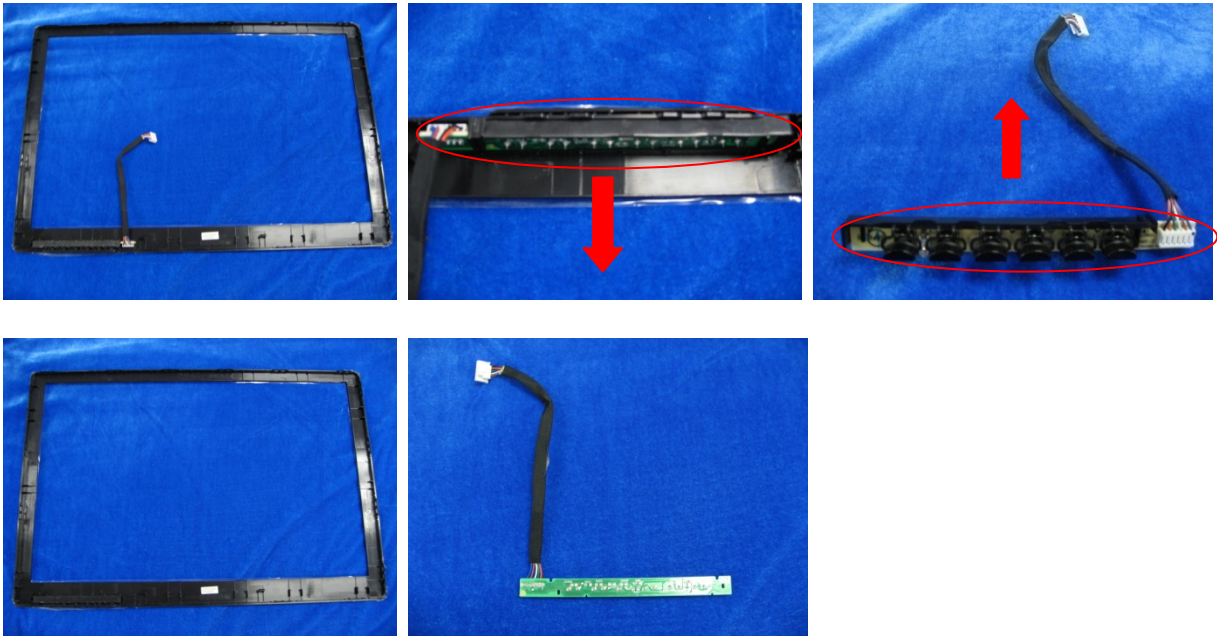
- ① Turn over the main board and take out the mylar.
- ② Turn over the main board and unscrew the four screws, then tear out the AL tape.
- ③ Unscrew the screw.



S7 Remove the panel.

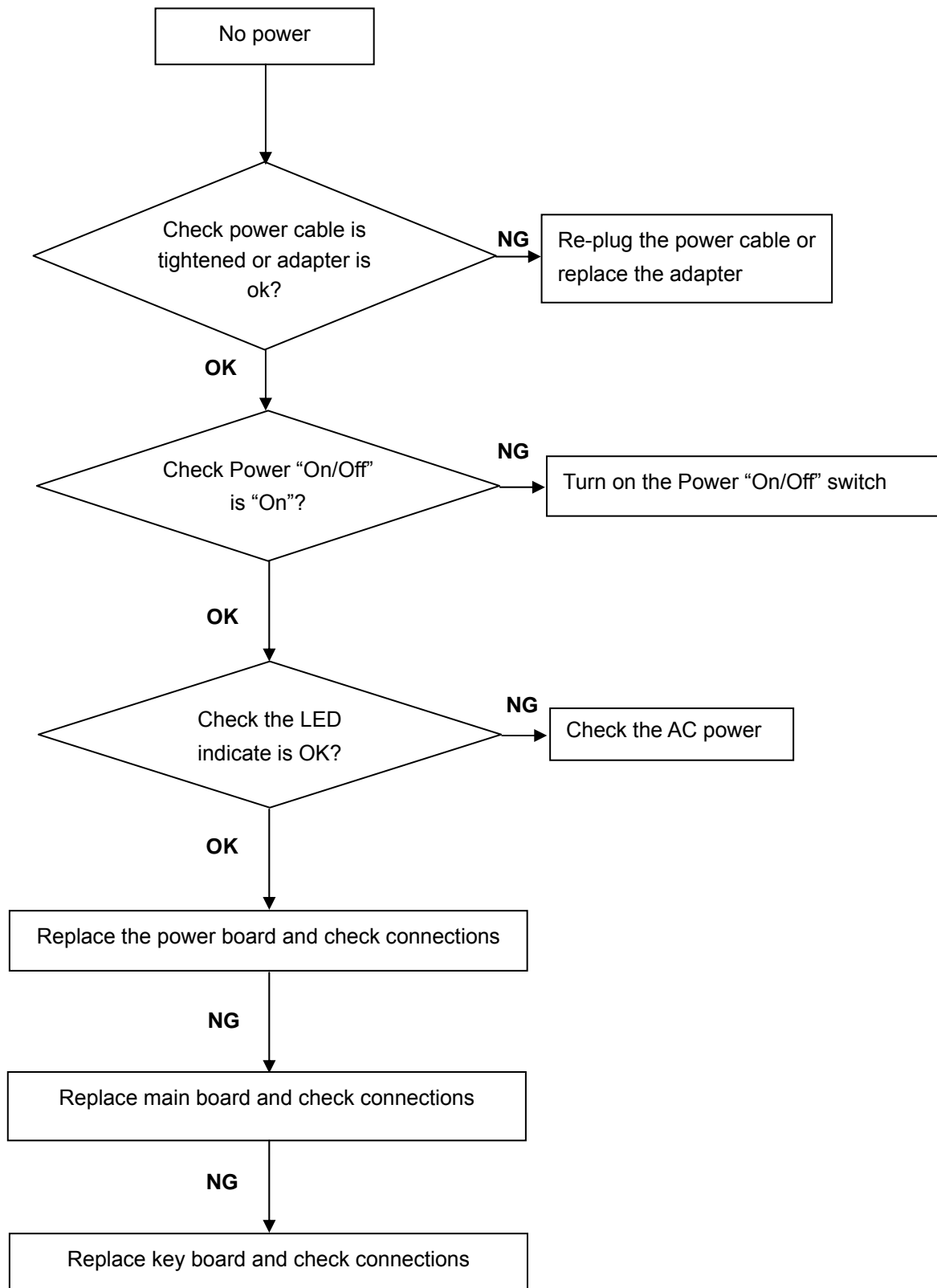


S8 Separate the key board and the bezel.

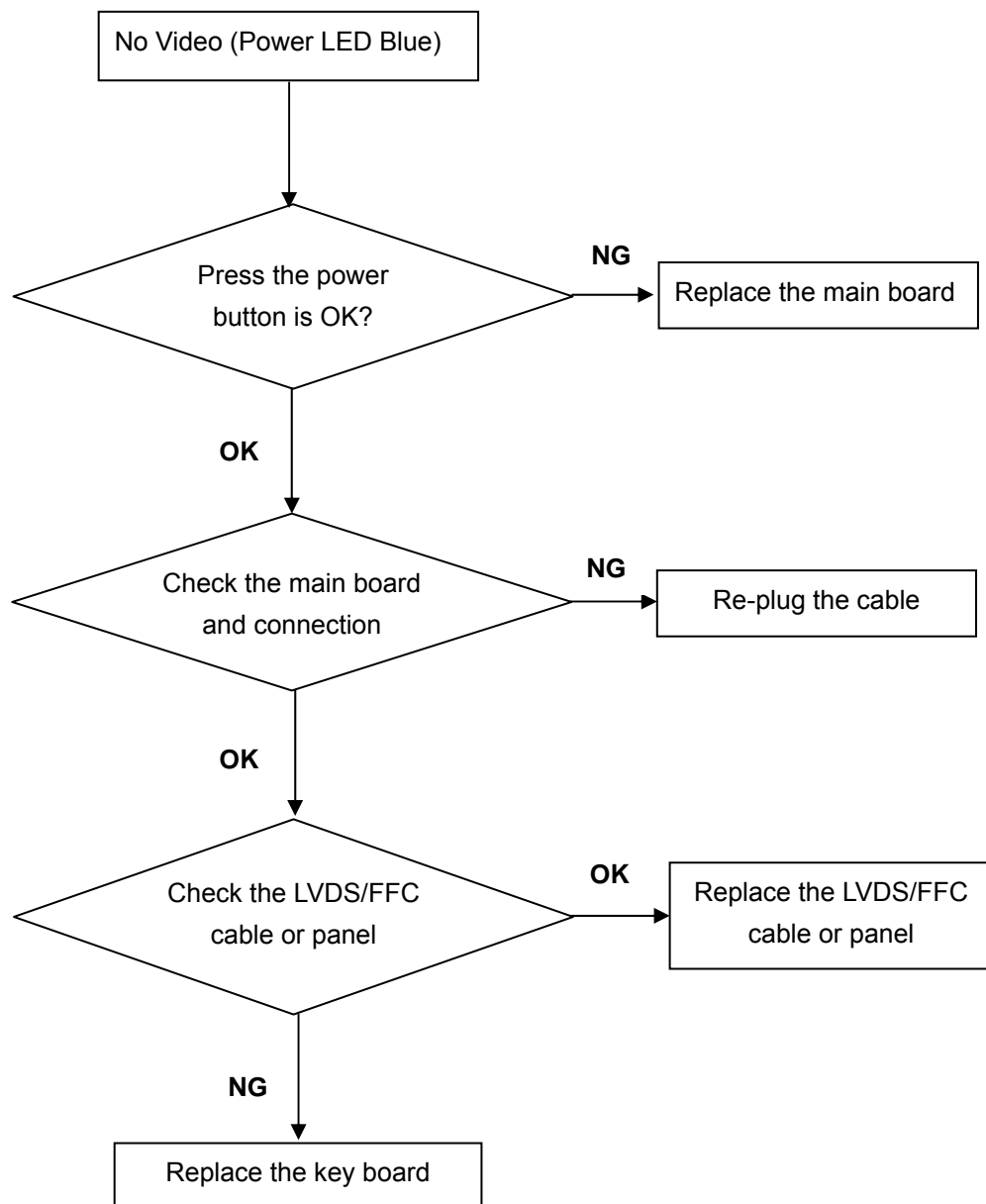


## 5. Troubleshooting

### 1. No Power

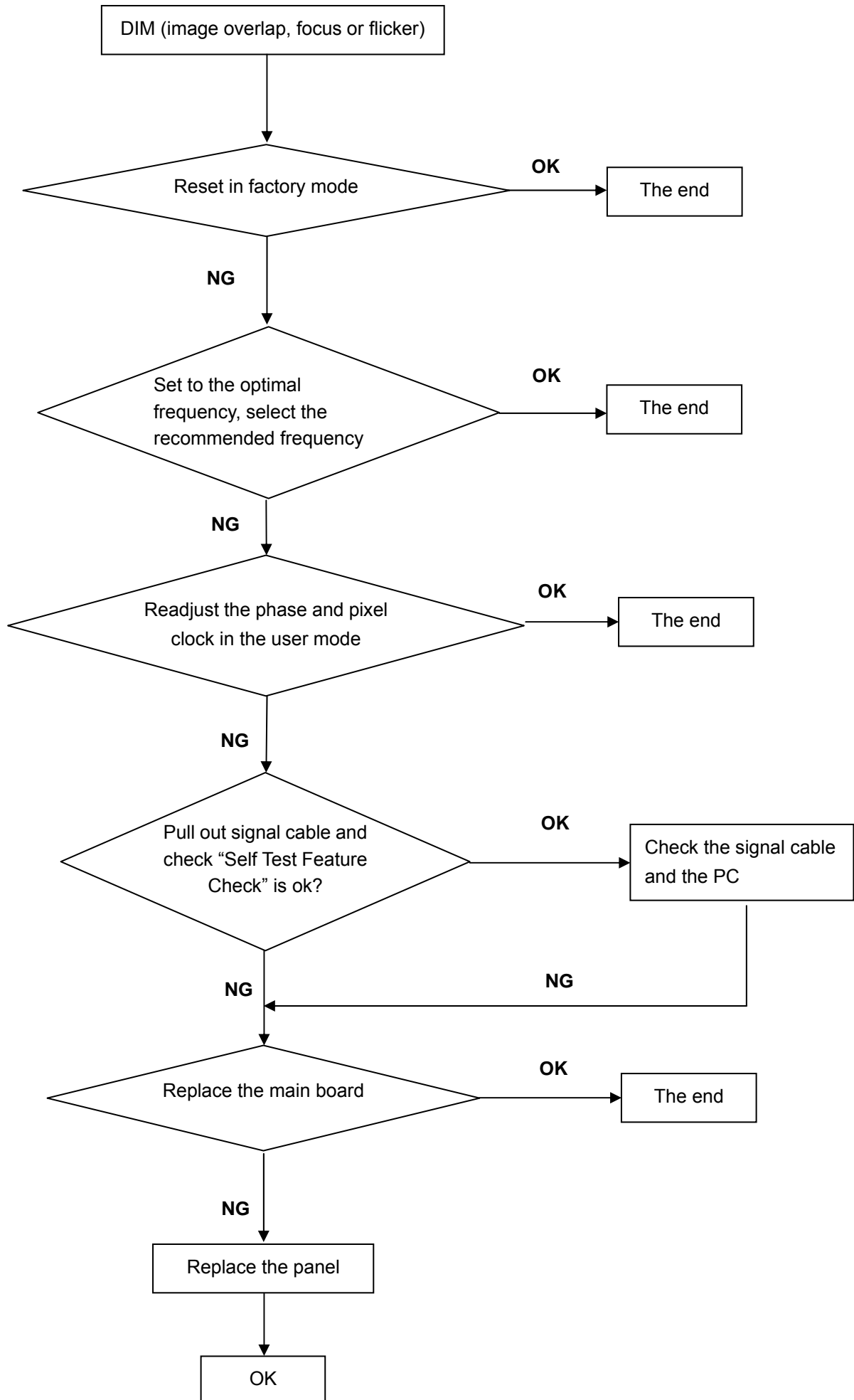


## 2. No Video (Power LED Blue)

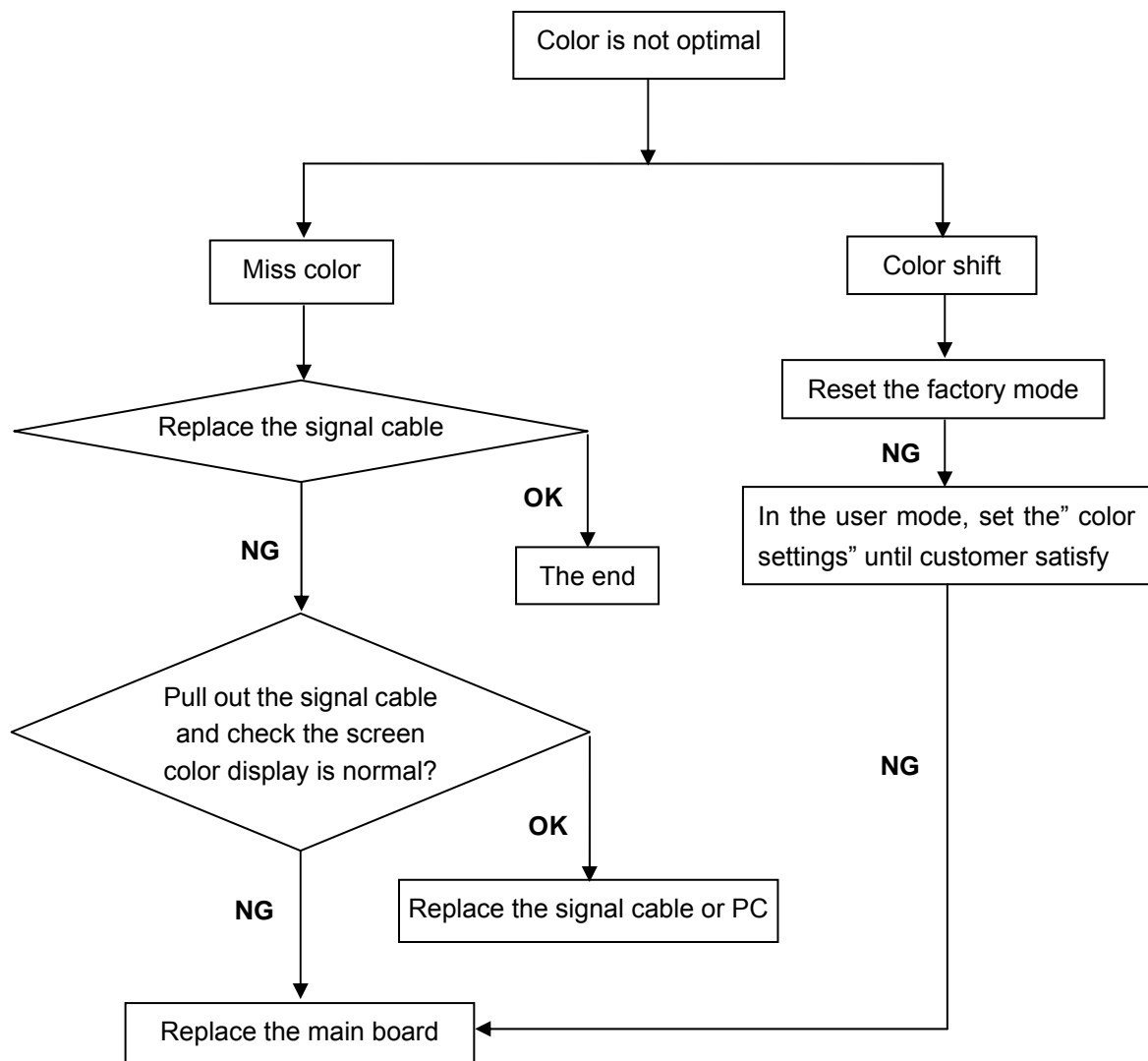




## 3. DIM



## 4. Color is not optimal



## 6. Firmware Upgrade Process

### 6.1 Test Environment Preparation:

Hardware and Software Required:

- USB cable
- VGA cable
- ISP Board: 715GT034-B
- PC
- Monitor
- ISP tool: V4.5.0.8.0
- New F/W

USB cable



VGA cable



ISP Board: 715GT034-B



PC



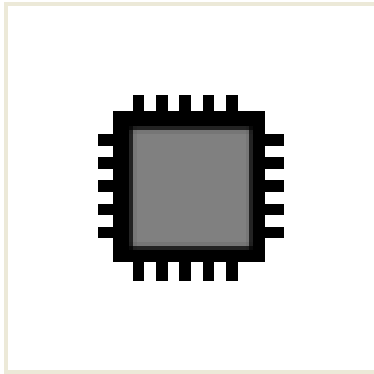
Monitor

ISP tool: V4.5.0.8.0

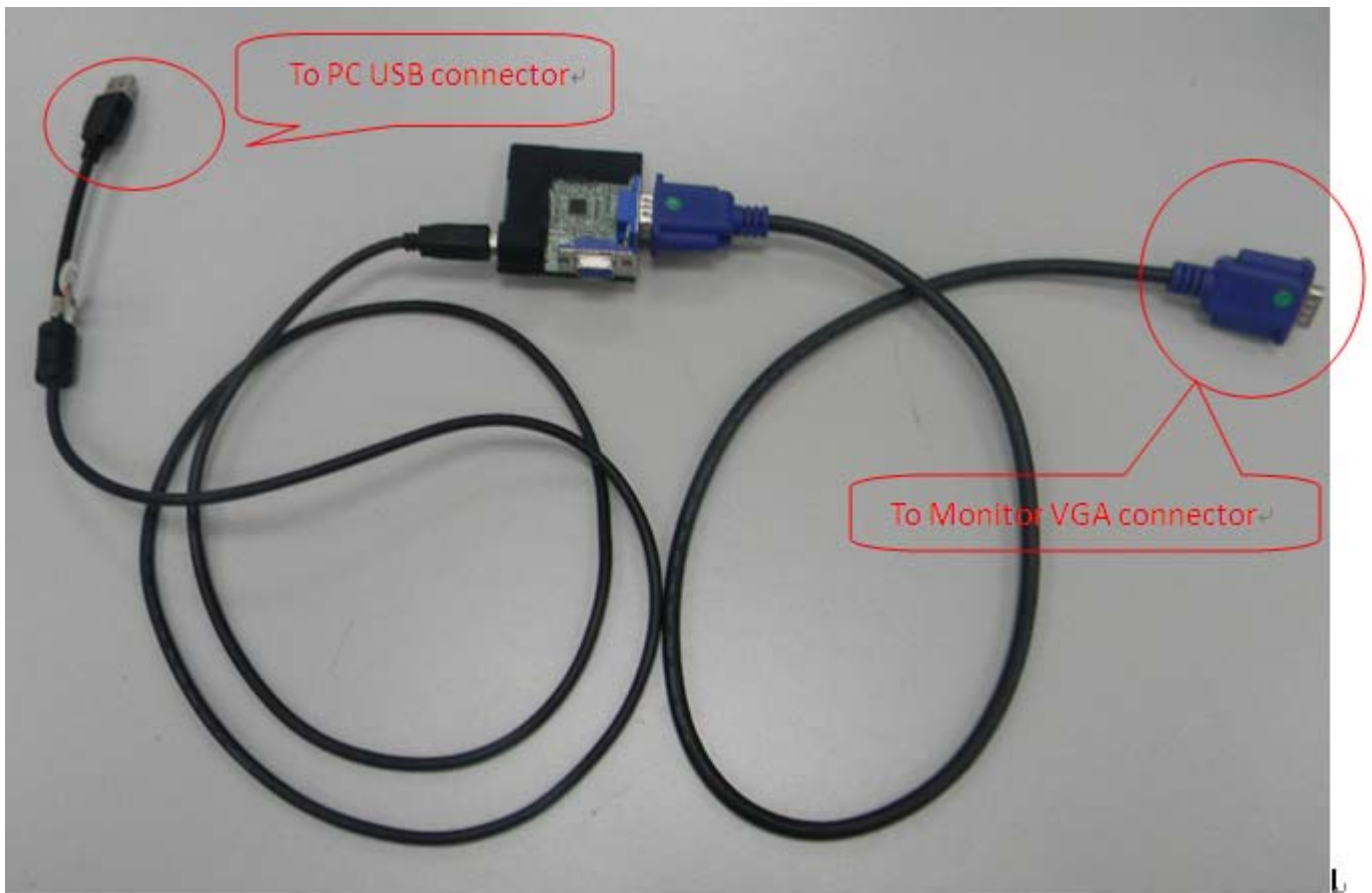


ISP\_Tool.exe

## New F/W

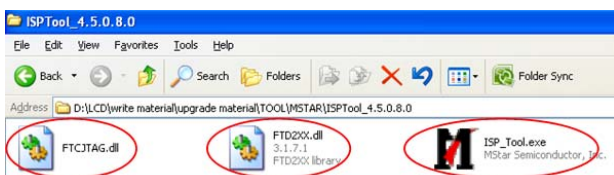


## 6.2 Connection:



## 6.3 ISP Programming Procedures:

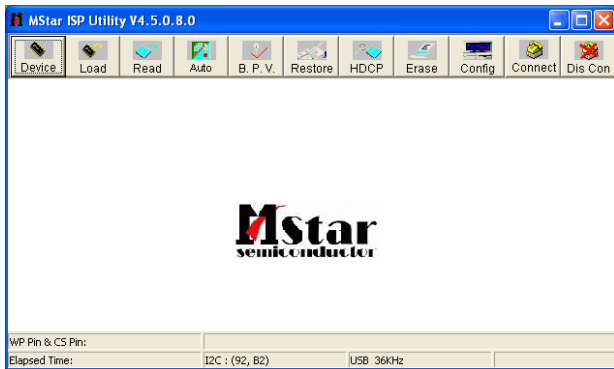
S1. These three files must be put in one folder as the below picture.



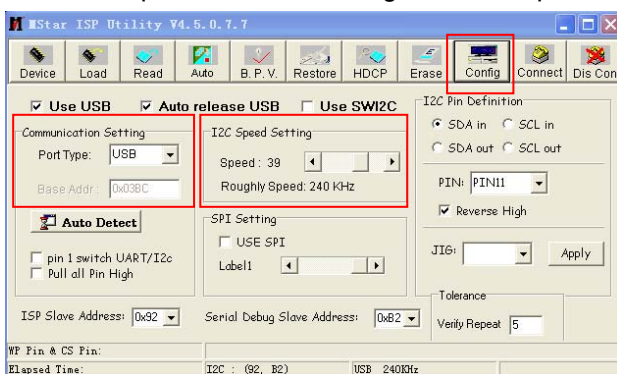


ISP\_Tool.exe  
MStar Semiconductor, Inc.

S2. Double-click  to run the ISP tool.



S3. Set the parameters in “Config” window. Open the configuration window. Speed less than 39. Port Type:USB.



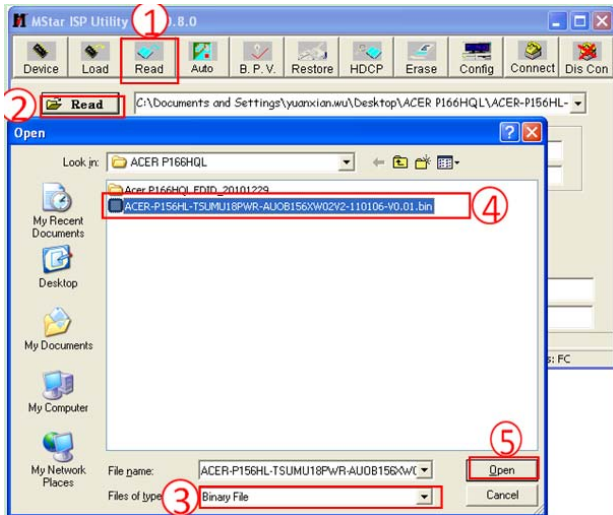
S4. Set the parameters in “Device” window. Check “WP Pin pull to high during ISP”.



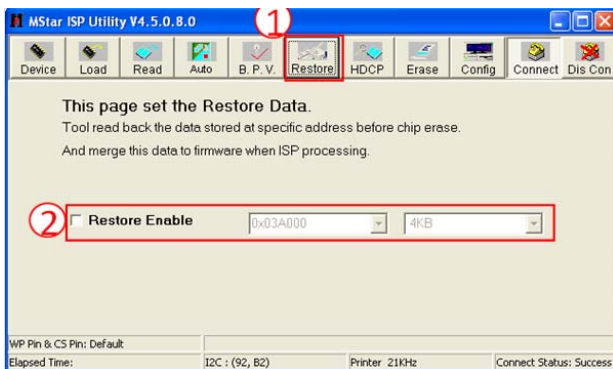
S5. Click the “Connect”, the tool will communicate with monitor which can detect the flash type.



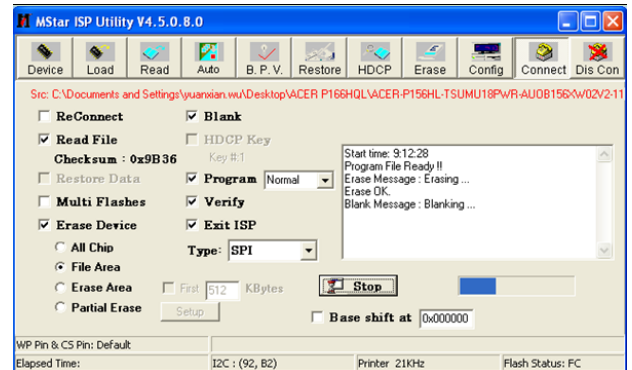
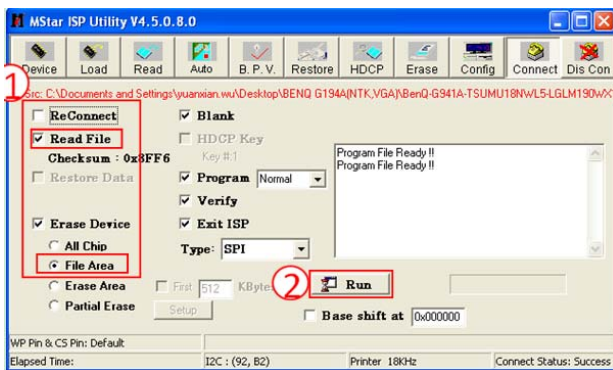
S6. Load the F/W as the below picture.



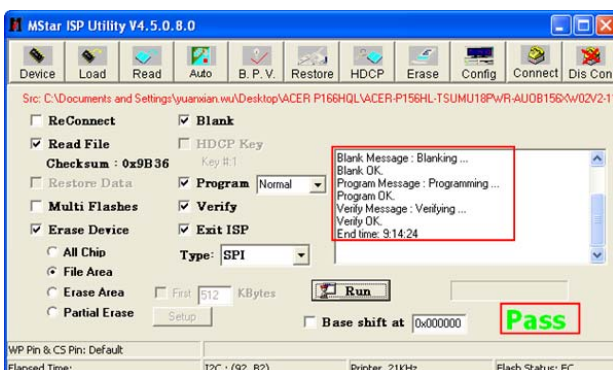
S8. Set the restore address to save HDCP for DVI or HDMI. Deferent monitor has deferent address and space for HDCP. If monitor has not DVI or HDMI, don't tick "Restore Enable".



S9. Set parameter in "Auto" window. Processing after clicking "Run".



S10. Successful upgrade.

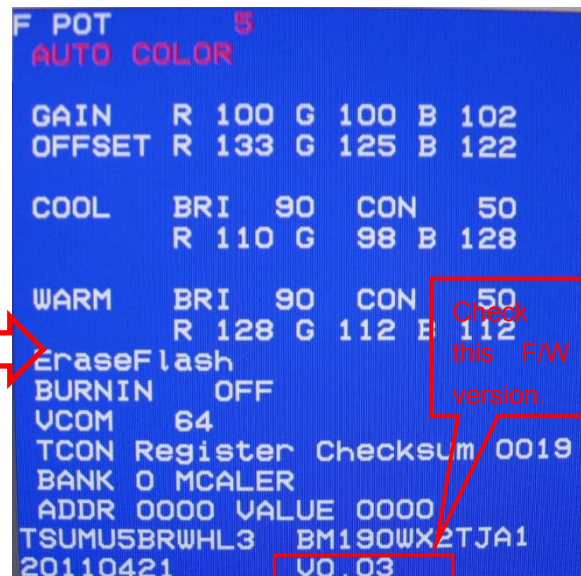
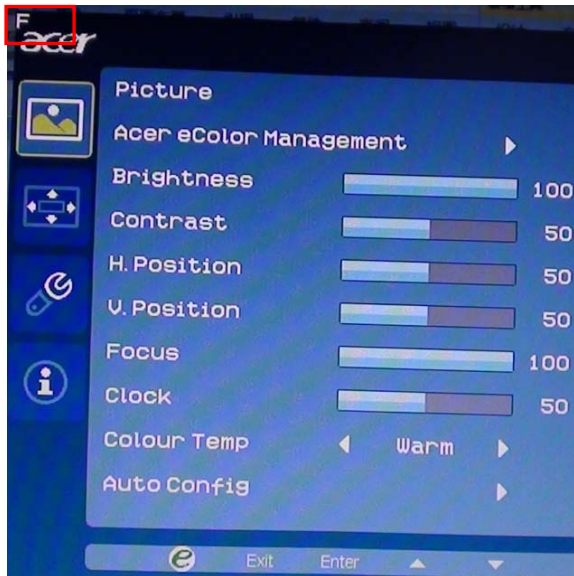




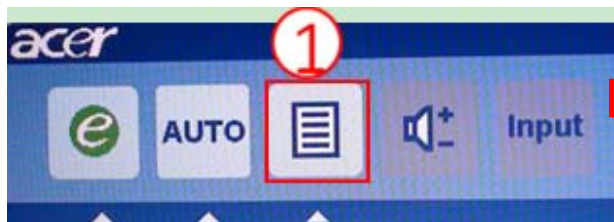
#### 6.4 Check the firmware version.

S1. Connect VGA source to monitor and turn it on.

S2. Pressing “e” and power on, when the screen lights, release the key and press “MENU” again to open the menu with “F” and select “F” to open factory menu.

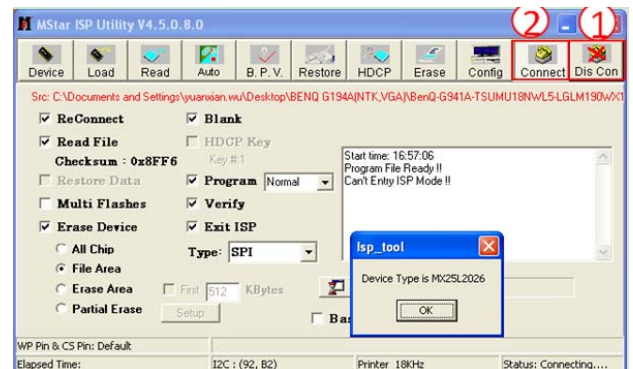
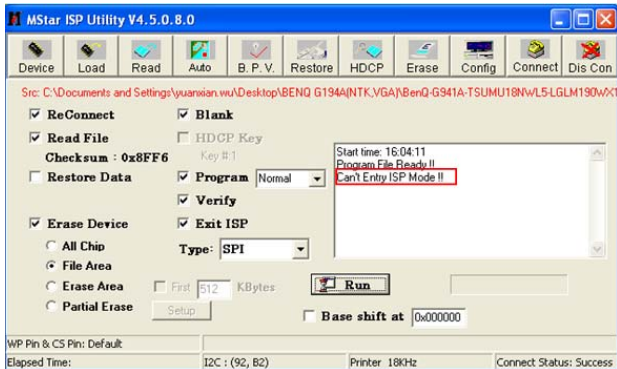


S3. Restart the monitor. And then open the user menu. Factory reset will turn off Burn in mode.

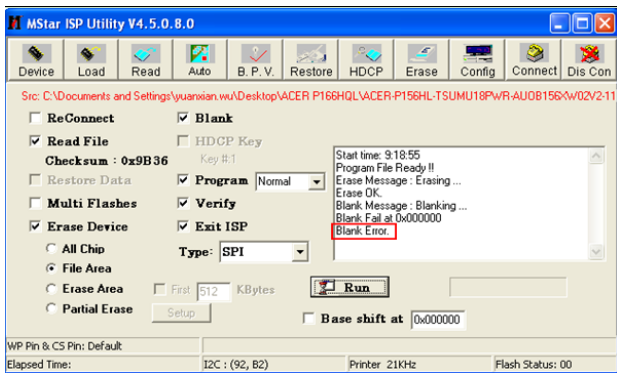


## 6.5 Q&A

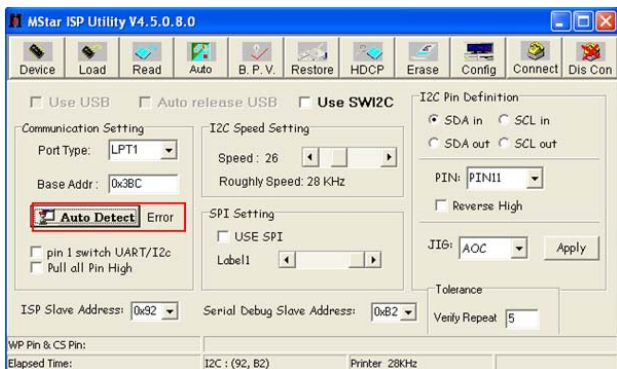
S1. If appear Enter ISP Fail as the below left picture. Check the cables and ISP board whether are connected fluently. If not ok, AC off the monitor for a while and retry it. Click the “Dis Con” and click “Connect” again (as below right picture).



S2. If appear Blank Error. Change ISP board or cable. Make sure the connection is ok. Change PC.



S3.If appear Auto Detect error! The disconnection of ISP Board results this error. Please check the ISP board connection with PC.





## 7. Writing EDID Process

### 7.1 Test Environment Preparation:

Hardware and Software Required:

- LPT cable(male to male)
- VGA cable
- 12V DC adapter
- ISP Board: 715GT034-B
- PC
- Monitor
- LPT port driver
- ISP tool: TPVDDC20100901.exe
- EDID

LPT cable(male to male)



VGA cable



12V DC adapter



ISP Board: 715GT034-B



PC

Monitor



LPT port driver



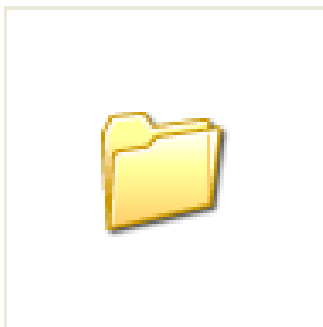
PORT95NT.EXE

ISP tool: TPVDDC20100901.exe



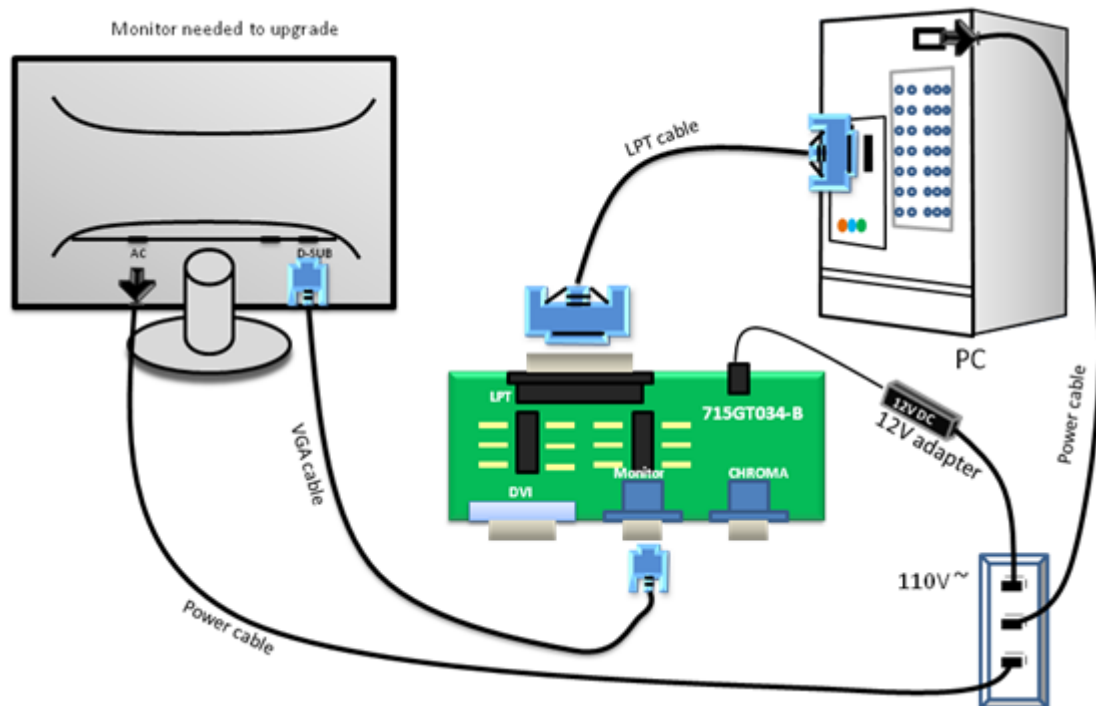
TPVDDC20100901.exe

EDID



acer S190WL EDID


## 7.2 Connection:



## 7.3 Writing VGA and DVI Process:



PORT95NT.EXE  
PackageForTheWeb Stub  
InstallShield Software Corpora...

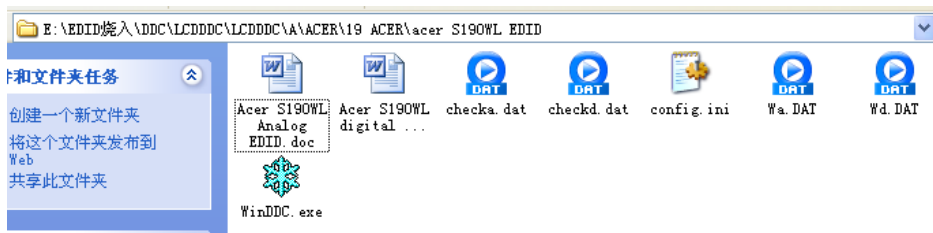
S1. Double-click  to install it. And restart PC after installation.

S2. Prepare the EDID written. Change the EDID files name as below rule.

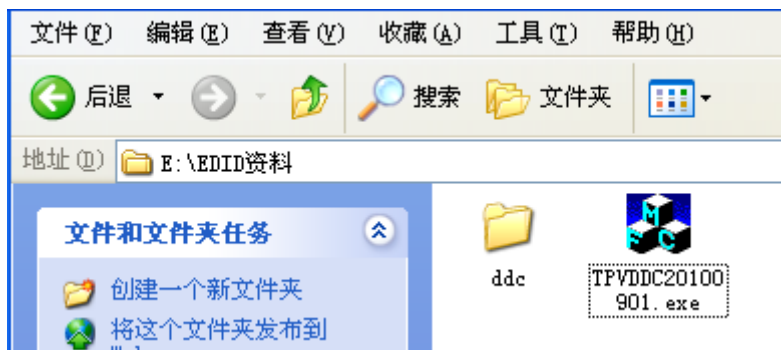
Analog EDID → Wa.dat

Digital EDID → Wd.dat

S3. Copy WA.dat to one folder named as ACER S190WL which must contains "config.ini" file.

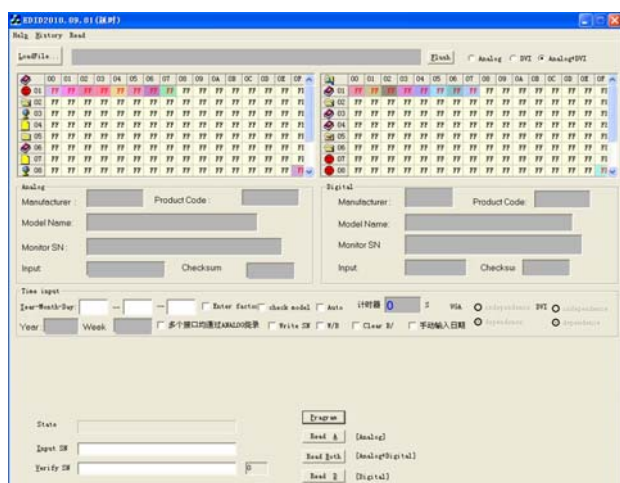


S4. Copy ACER P166HQL to DDC folder and put DDC and ISP tool together.

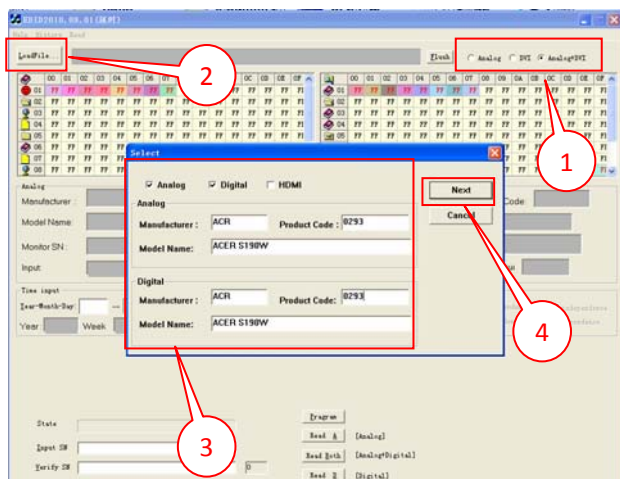




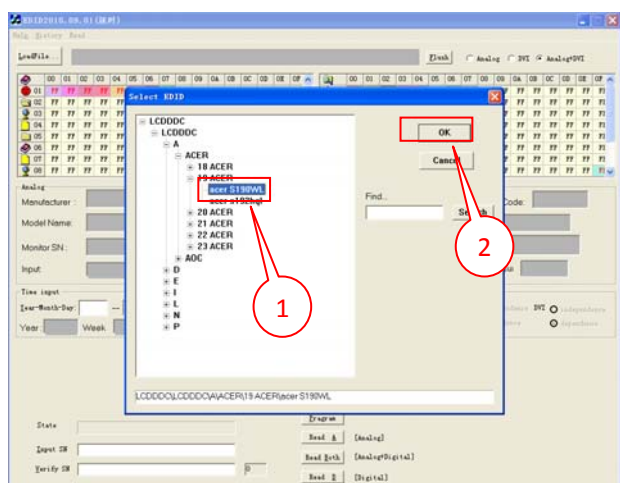
S5. Double-click [TFVDDC20100901.exe](#) the icon to open the tool.



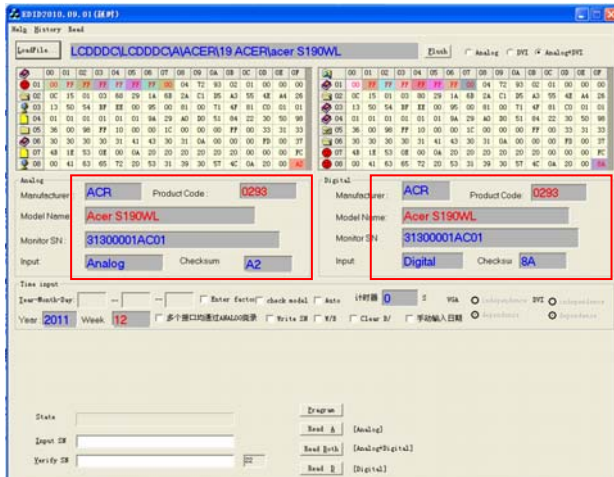
S6. Check the “Analog+DVI” and click “Loadfile” to set the parameters. Click “Analog” and “Digital”, Manufacturer: ACR, Product Code: 0293, Model Name: ACER S190WL.



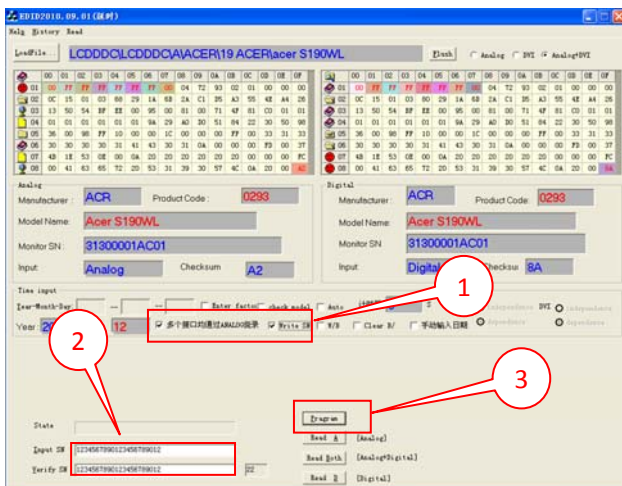
S7. Select the EDID folder as the below picture.



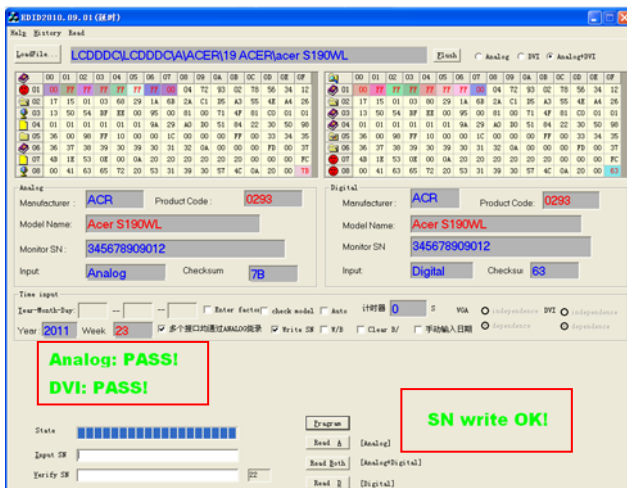
## S8. Load EDID successful.




S9. Check the “Only connect VGA” and “Write SN”, and type in the 22 digit S/N which must be the same as S/N in the monitor’s barcode.

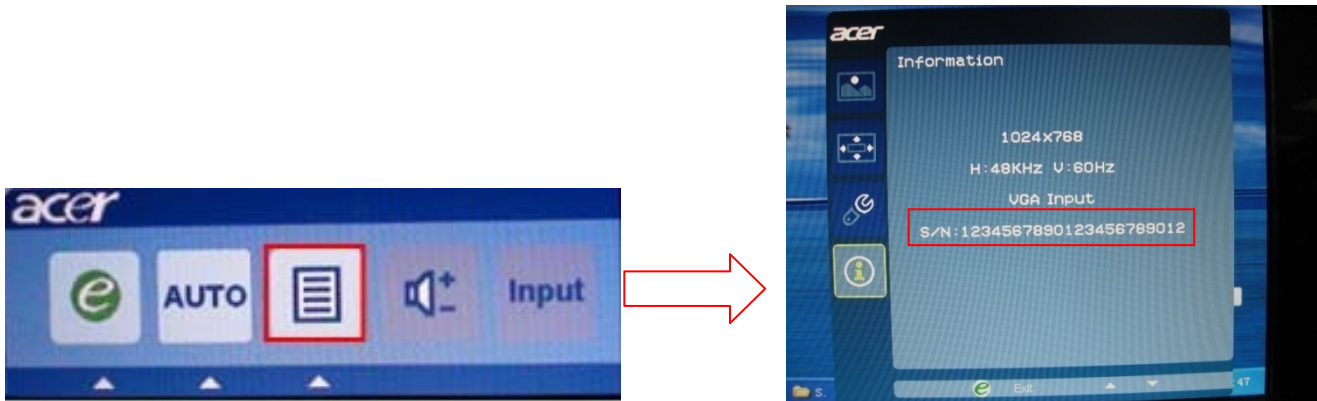


S10. Click “Program” to start writing. When the green “PASS” appear, the process is finished.



#### 7.4 Check the S/N.

S1. Press “MENU” key —“”— “Information”—“SN” in user mode.



#### 7.5 Q&A

S1. If can't write! You could try to restart the monitor (AC on the monitor and turn on it).

S2. If can't write! Take apart the monitor and connect the 7pin of EEPROM to GND to disable write protection then write EDID one by one.

S3. If can't write! Set the Burn in on last to try again.



## 8. FRU (Field Replaceable Unit) List

This chapter gives you the FRU (Field Replaceable Unit) listing in global configurations of Acer V183HV-V193HQV. Refer to this chapter whenever ordering for parts to repair or for RMA (Return Merchandise Authorization).


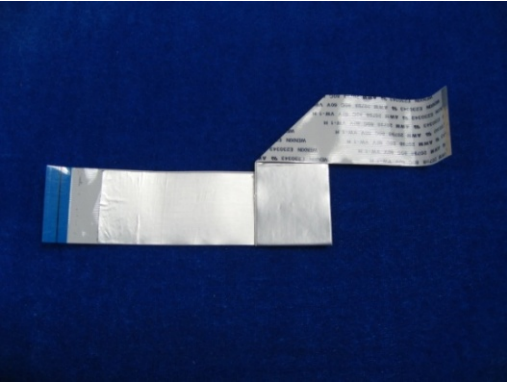
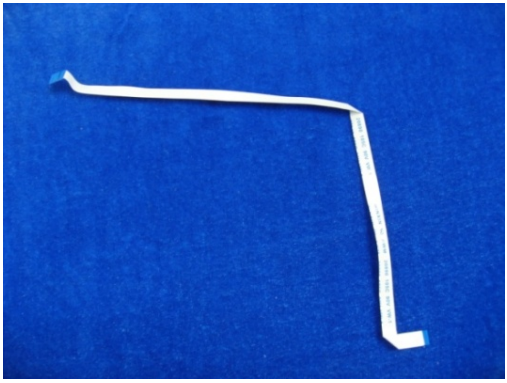
Please note that WHEN ORDERING FRU PARTS, you should check the most up-to-date information available on your regional web or channel. For whatever reasons a part number change is made, it will not be noted on the printed Service Guide. For ACER AUTHORIZED SERVICE PROVIDERS, your Acer office may have a DIFFERENT part number code from those given in the FRU list of this printed Service Guide. You MUST use the local FRU list provided by your regional Acer office to order FRU parts for repair and service of customer machines.

NOTE: To scrap or to return the defective parts, you should follow the local government ordinance or regulations on how to dispose it properly, or follow the rules set by your regional Acer office on how to return it.

Picture	Description	TPV Part No.	Acer Part No.
	HINGE ASSY	A37G0268011	60.LUF0B.003
	Rear Cover ASSY	A34G2643AEMA1B0100	60.LUF0B.002



	Panel	750GBT190W2A11N000	LK.19008.039
	Bezel	A34G2642AEMA1B0130	60.LUF0B.001
	I/O Bracket	A15G1677201	N/A
	Main board	CBPCBAWABQJ	55.LUF0B.001

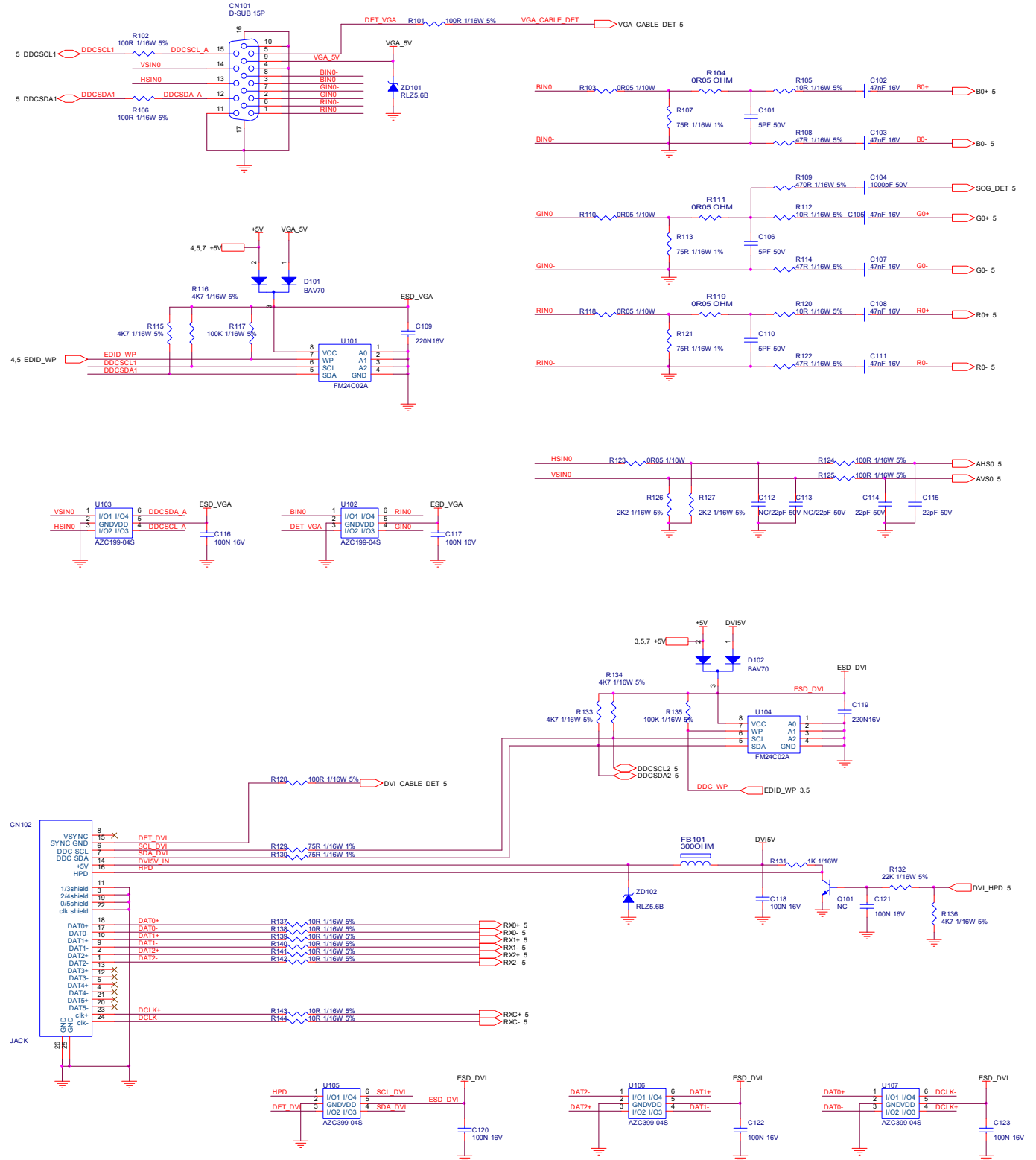
	Key board	KEPCBQJ1	55.LUF0B.002
	FFC(MAIN BOARD TO BOARD ASS'Y)	F95G176J-50114	50.LUF0B.003
	FFC(MAIN BOARD TO BACKLIGHT)	F95G176J-10115	50.LUF0B.002

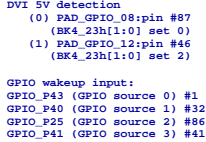
## 9. Schematics and Layouts

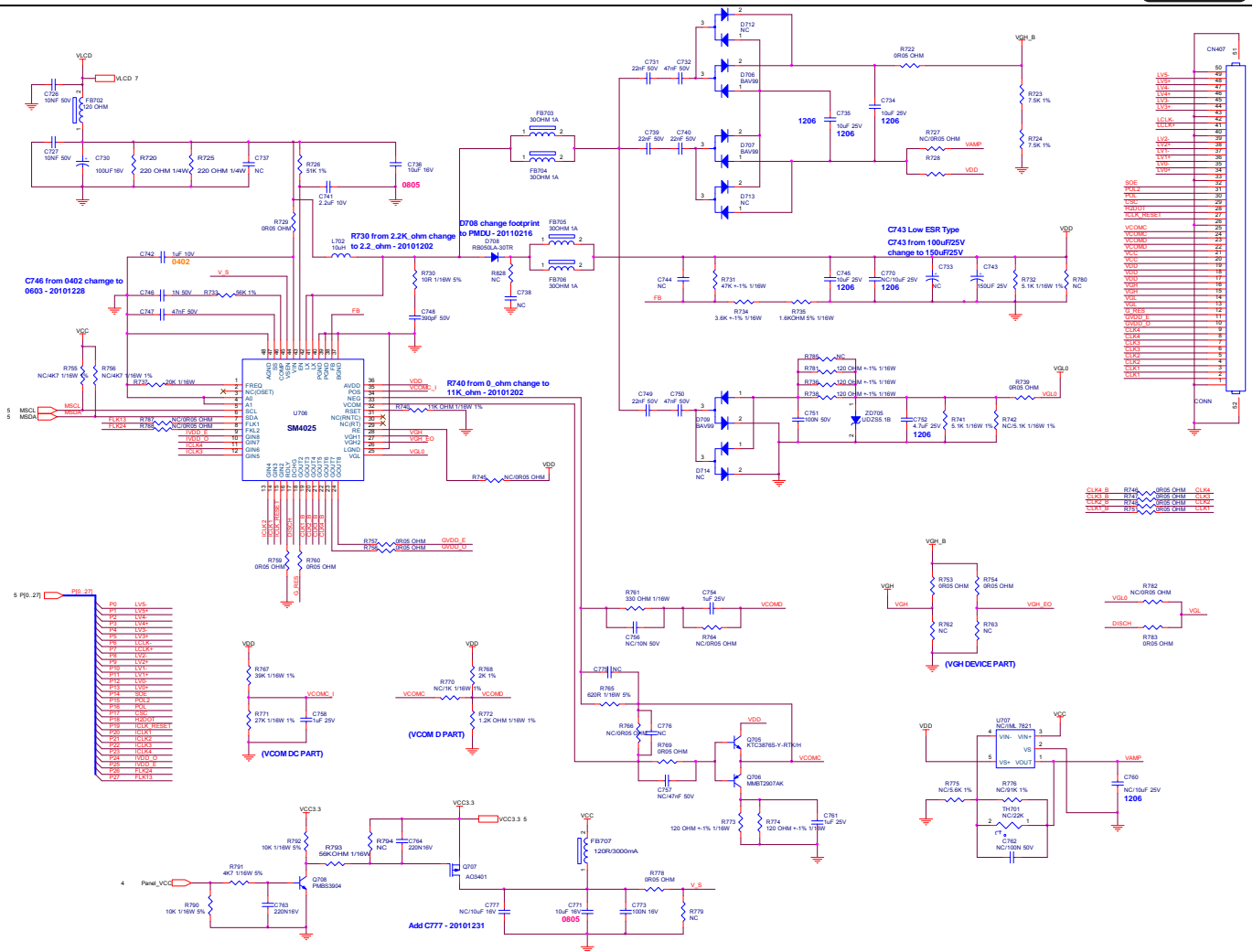
### 9.1 Schematics

#### Main Board

715G4734M01000004I (DVI only for s190wl BD)





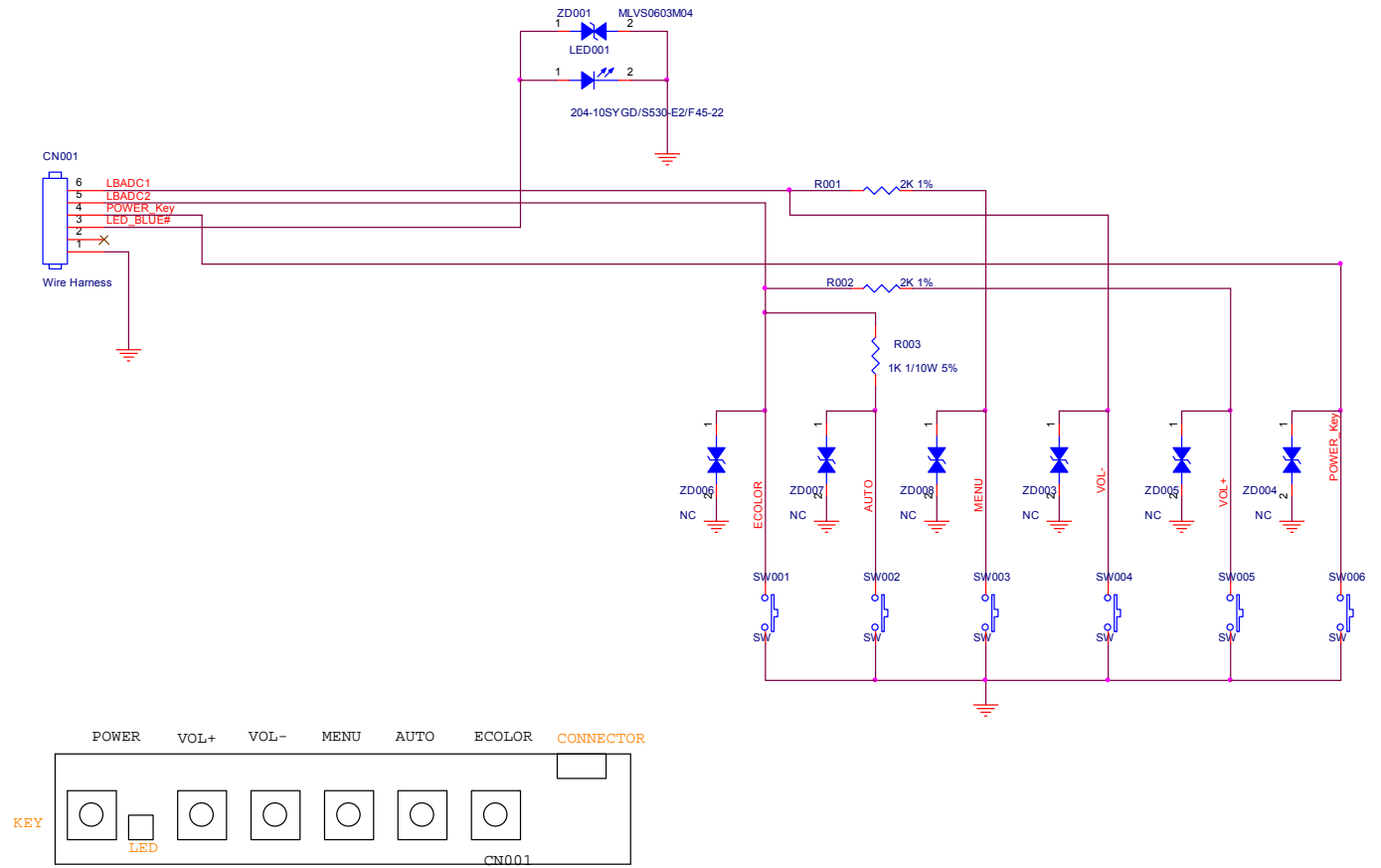






## Key Board

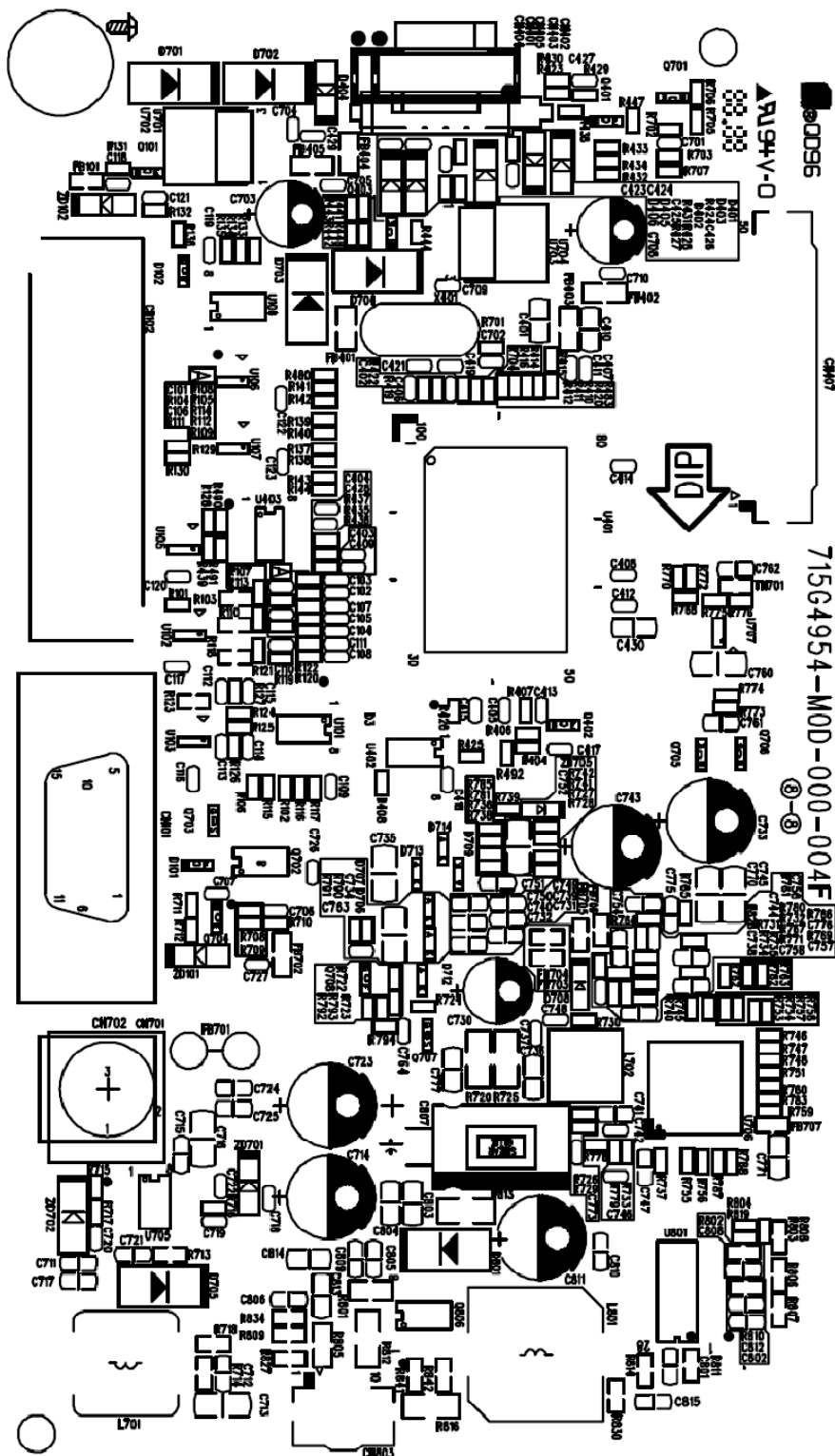
715G4982K0D000003S

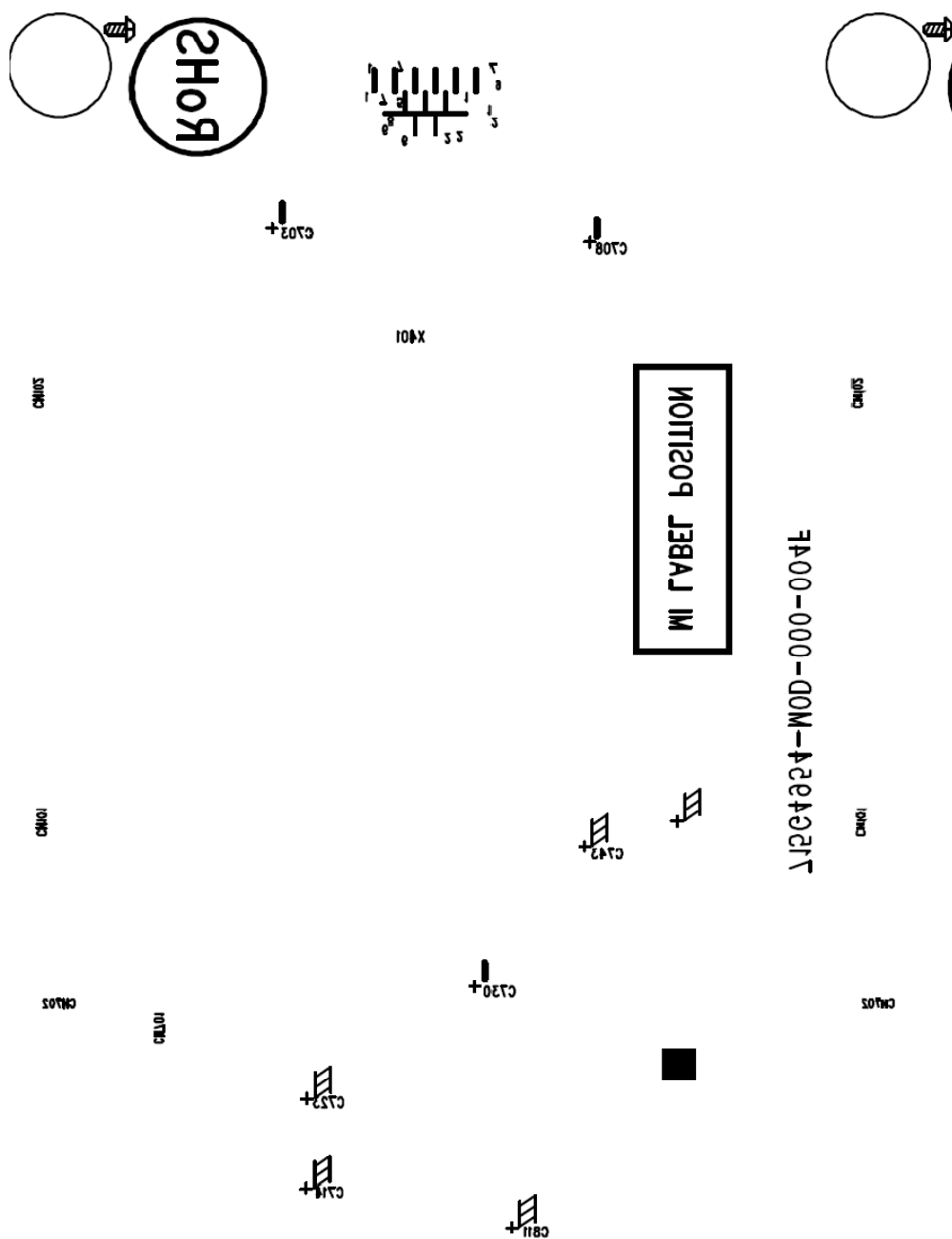


## 9.2 Layouts

## Main Board

715G4954M0D000004F





Key Board

715G4982K0D000003M

